CLIMBING TIMER SYSTEM **CT2**

CT2 is ideal for both competitions and training.

We designed CT2 climbing timer system with everyday non stop usage in mind.

So you can install it at the speed sector of your climbing gym, set it for fully auto-start opera-tion and let the visitors to enjoy easy and perfect timing.

CT2 COMPONENTS

CT2 SYSTEM CONSISTS OF:

- **Embedded Timer Controller** - the heart of the system.

- **Timer Displays** - large 5-digit high brightness LED displays, digit height - 10 cm, color - red, optimal visibility - up to 50 m.

- **Power supply** - AC/DC adapters (AC 110-220V / DC 12V).

- **Cables set**. Different cable lengths can be selected depending on the wall's high, displays' and timer's position.

- **Finish-sensors** - contact-mat or touch-sensor with built-in LED lights.

- **Start-buttons** - wall mounted (or wired remote) push buttons. Used for manual start.

- **Start-sensors** - contact-mat. Used for reaction time measurement and false-start detection as well as for auto-start functionality.

- **Remote control** - various design options, incl. wireless remote control. Used for system configuration, mode selection and for manual start.

- **Start-semaphores** - LED light indicators, embedded in high-quality and dura-ble HRT com-posite holds which can be conveniently installed on the wall. So when it's appropriate, the semaphore holds can serve as part of the route too.
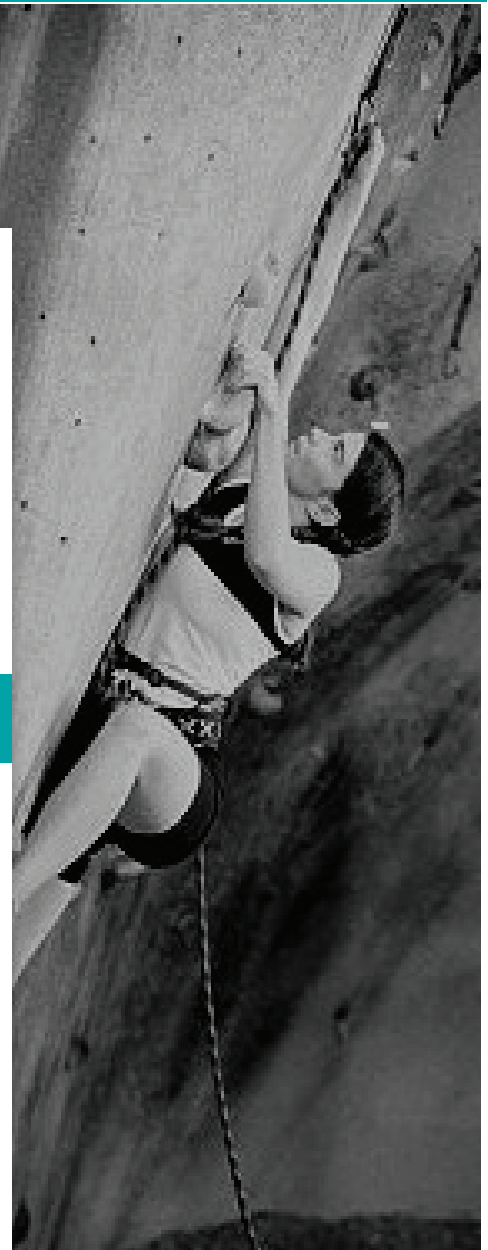
  Semaphores help avoiding interferences between parallel starts thus many climbers can train simultaneously close together without disturbing each other.

  Semaphores also gives equality to deaf competitor climbers allowing them to wait for the start signal looking ahead at their route instead of at the starter.

- **Start Tone Loudspeakers** - powerful tone speakers. Volume controlled through timer options (can also be switched off completely).

  Additional small start tone speakers are embedded in the start-semaphore holds.

  It's also possible an external sound device to be used instead of the timer's loudspeakers (two line-out channels available).

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CLIMBING TIMER SYSTEM **CT2**

CT2 FUNCTIONAL DESCRIPTION

THE SYSTEM OFFERS:

- Speed Climbing stopwatch mode:
    - Synchronous and independent starts (on the two routes)
    - Manual and Auto (self-triggered) starts
    - Useful metering and auxiliary options
    - Visual and acoustic feedback when a climber completes the route
    - Better time highlighted (blinking)

- Lead Climbing limit countdown timer mode
    - Manual and Auto (self-triggered) starts
    - Useful auxiliary options (announce last minute etc.)

- Bouldering rotation time countdown timer mode
    - Manual and Auto restart
    - Useful auxiliary options (announce last minute etc.)
    - Technical incident pause

- An optional serial interface allows additional functionality using a PC:
    - Detailed event-reports
    - Remote control and configuration
    - Automated external processing of start-lists and ranking
    - Firmware upgrade

- Other:
    - At device start-up a brief self-test is performed.
    - Whenever timer is not running (both routes) for some time, it enters an energy-saving (sleeping) mode. Timer wakes up immediately when a start-button or start-sensor activity is detected or command received.
    - Timer can always be cleared or reset by pressing and holding the start-button for few seconds.
    - An optional single route configuration is available too (hardware upgrade-able to a complete CT2 system)

TIMER MODES:

1. Stopwatch timer for Speed climbing.

The subject is to measure the climbing time.
Final climbing time is shown at displays with 0.01 second resolution (except when display length exceeded). Internal timer resolution is 0.001 second. Running time is displayed with 0.1 or 1 second resolution. When timer is cleared zero is displayed.

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CLIMBING TIMER SYSTEM **CT2**

CT2 FUNCTIONAL DESCRIPTION

1.1. Speed Climbing competition race (synchronous start on both routes).

Required accessories:
- Finish sensors with built-in LED lamps
- Remote-Control
- Start-sensors (reaction time is measured for false-start control)
- Displays (and/or PC)

Recommended accessories:
- Start-semaphores
- Start-tone-speakers
- Wall mounted Start-buttons

Both climbers go at their marks and set one or both hands on the first handhold, one foot on the start-sensor, and the other in any position.
Waiting for the start signal they can look at the start-semaphores where red lights should be lit. When both climbers are detected staying steady on the start-sensors for few seconds yellow lights are lit on start-semaphores. In manua-lstart mode that is the moment when the starter should say "attention" and then in a little while to push the start-button. In auto-start mode the system will start the race in a few moments alone. In both cases (manual- and auto-start) the climber must not move their foot from the startsensor until the start signal is issued (acoustic 0.2 seconds and continuous green light on the start-semaphores).
Immediately after climber's foot leaves the start-sensor, the reaction time optionally can be displayed for a while. Then running time is displayed until the finish-sensor is triggered by the climber. If the climber's reaction time is less than 0.1 second, a false-start is indicated both by the start-beeper (for 2 seconds) and by the start-sema-phore (blinking red light). In that case the displayed reaction time is blinking too.
Individual timers are started synchronously with the start-signal by default. However, there is an option individual timers to start counting when climber's foot leaves the start-sensor ("net-timing "). At the top of the route the climber stops the timer by striking the finish-sensor with their hand. Then the built-in LED light and a special tone signal indicate its timer has been successfully stopped.
After the routes are completed by the climbers, their results remain on the displays until the CT2 timer is cleared.
Starter can clear the CT2 timer (for the two tracks) holding the remote -start-button pressed for 2 seconds.
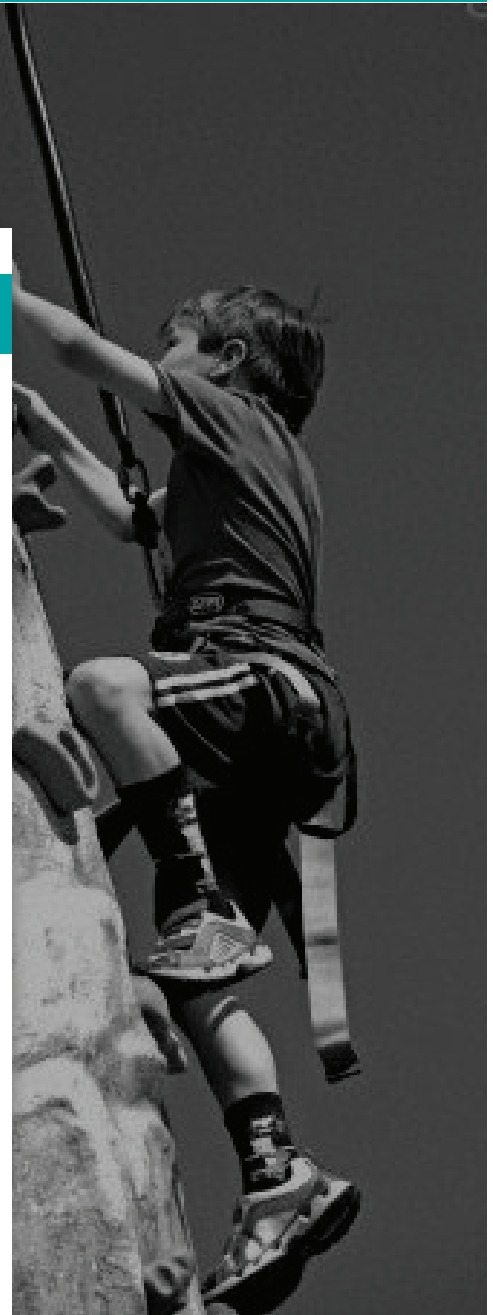
1.2. Speed Climbing ind ividual training (asynchronous starts on both or on one of the routes).

Required accessories:
- Finish sensor with built-in LED lamp (partially mirrors the start -semaphore)
- Start-sensor(s)
- Display(s) (and/or PC)

Recommended accessories:
- Start-semaphore(s)
- Start-tone speaker(s)
- Wall mounted Start-button(s)

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CT2 FUNCTIONAL DESCRIPTION

The climber sets their foot on the start-sensor, the other foot in any position and one or both hands on the first handhold. Waiting for the start signal they can look at the start-semaphore where a red light should be lit. After the climber has not moved their foot for few seconds "Attention!" is indicated - startsemaphore becomes yellow. Now the climber must not move their foot from the start -sensor. In a little while (in a random moment up to 2 seconds later) start is signalled by the system through start-semaphore (continuous green light) and start-tone-speaker (for 0.2 seconds). Manual-start option is available too. As an option immediately after climber's foot leaves the start-sensor, the reaction time can be displayed for a while. Then running time is displayed until the finish -sensor is triggered by the climber. If false-start monitoring is enabled and the climber's reaction time is less than 0.1 second, a false-start is indicated both by the start-tone-speaker (for 2 seconds) and by the start-semaphore (blinking red light). In that case the displayed reaction time is blinking too. Net timing option is available if desired.

At the top of the route the climber stops the timer by striking the finish-sensor with their hand and the built-in LED light indicates the timer is successfully stopped. After completing the route, climbing time is displayed until the individual timer or the whole system is cleared.

The individual timer will be automatically cleared the next time a climber steps on the start-sensor for few seconds or when the start-button is held pressed.

2. Countdown timer for Lead climbing

Remaining time for climbing is displayed with 1 second resolution.

When timer is cleared climbing time limit is displayed .

> Required accessories:
> - Start-sensor(s)
> - Display(s) (and/or PC)
> - Remote control (and/or PC)
>
> Recommended accessories:
> - Start-semaphore(s)
> - Start-tone-speaker(s)
> - Start-button(s)
> - Finish sensor(s) with built-in LED lamp (partially mirrors the start-semaphore, sensor not used)

Climbing time limit and options must be set in advance using remotecontrol or PC. Timer start is triggered either by a judge or (optionally) by the start-sensor. When timer becomes zero a light and sound signal is issued .
Optionally another distinguishable signal can announce the last minute.
Countdown timer is reset when a starter holds the remote-start-button pressed for 2 seconds.

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CT2 FUNCTIONAL DESCRIPTION

3. Bouldering rotation time

Remaining time for climbing is displayed with 1 second resolution.
When timer is cleared climbing attempts time limit is displayed.

Required accessories:
- Display(s) (and/or PC)
- Remote control (and/or PC)

Recommended accessories:
- Start-tone-speaker(s)
- Start-semaphore(s)
- Start-button(s)
- Finish sensor(s) with built-in LED lamp (partially mirrors the start-semaphore, sensor not used)

Unnecessary accessories:
(No need to be disconnected from the system if already installed)
- Start-sensor(s)

Rotation time limit and options must be set in advance using remote-control or PC.
First rotation period is started manually.
The next period can optionally start automatically after the first one is completed.
Optionally a light and sound signal can announce the last minute of each rotation period.
In any moment (if a technical incident occurs) countdown can be paused and resumed later.
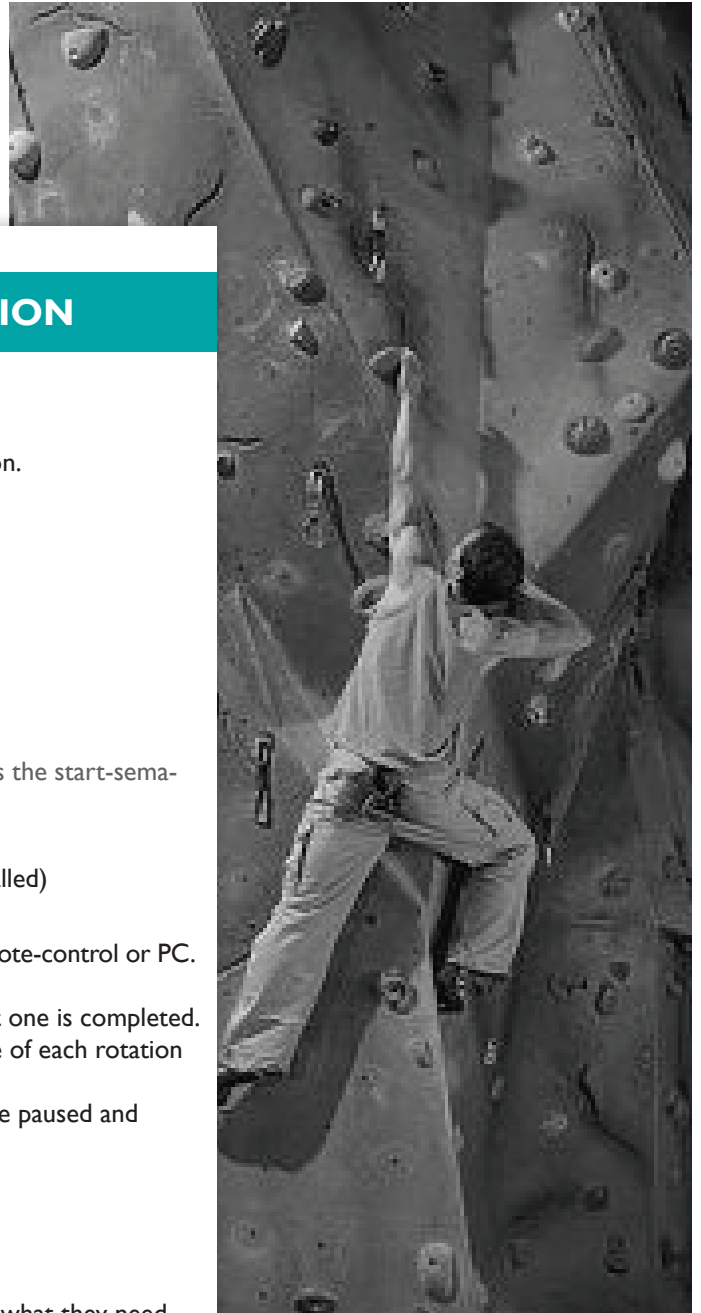
4. Customer-Requested Features

New feature-requests are welcome!

We are highly interested in delivering to our customers exactly what they need. Thus always we have the chance we would make our best to offer you just Your Perfect Fit Device.
Please do not hesitate to let us know the feature you are craving for. If your explanation is clear and we find the requested feature beneficial for our product, or if you purchase a large volume, there is a great chance you will receive Your Perfect Fit Device with no extra cost compared to the current base model. And of course, if you don't mind, we will mention your contribution along with the new feature's description in the device manual.
The same principle can be applied also in case you already use our device and suggest us a valuable new functionality. Then we can offer to you to upgrade (if applicable) your devices' firmware.

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