BELAYING AND TIMING DEVICES
FOR CLIMBING WALLS
**AUTOBELAY DEVICES: On belay**

OnBelay is air over hydraulic hydro-pneumatic automatic belay device that eliminates the need of a belayer. The device automatically retracts the cable during ascend and controls the speed during descend or in the event of a fall.

The braking system is one of the most dependable ones – the same type of system used to stop military aircrafts as they land on Aircraft carriers worldwide, implemented in their arresting engines.

Add to this our one of a kind Self Adjusting Speed Limiting Valves (SASLV) in our Onbelay will safely and reliably belay you over and over with a consistent descent speed of 1 m/s, regardless of the elements, temperature or your body weight.

### Benefits

- Cost efficient by reducing the staff needed
- Minimize injury risks due to human error
- Attract single and beginner climbers
- The ONLY European hydraulic autobelay

### Features:

- CE certified
- Fully redundant
- Fail safe in the event of:
  - Loss of pressure in the tank – sound & light alarm system option
  - Loss of up to 50% of the hydraulic fluid
  - Hose rupture
  - Malfunction of an entire hydraulic cylinder
- Low maintenance costs – the only consumable that needs replacement is the steel cable
- Minimum downtime – no annual shipment of the auto belay device for re-certification

### TECH SPECS

<table>
<thead>
<tr>
<th>Device weight:</th>
<th>OnBelay08 - 60 kg (132lb); OnBelay11 - 75kg (165lb); OnBelay14 – 100kg (220lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descent speed:</td>
<td>approx. 1.00m/s, (3'-3&quot;/s)</td>
</tr>
<tr>
<td>Max. retract speed:</td>
<td>approx. 1.50m/s, (5'/s)</td>
</tr>
<tr>
<td>Stroke:</td>
<td>OnBelay08 - 7.5m (24'7&quot;) ; OnBelay11 - 10m (33'); OnBelay14 - 13m (42'-8&quot;)</td>
</tr>
<tr>
<td>Usage for walls heights:</td>
<td>OnBelay08 - up to 8m (26 ft); OnBelay11 - up to 11m (36 ft); OnBelay14 - up to 14m (46 ft)</td>
</tr>
<tr>
<td>Brake:</td>
<td>Air over hydraulic system with 2 pistons and orifice check valve</td>
</tr>
<tr>
<td>Type of cable:</td>
<td>Steel cable DIN3069</td>
</tr>
<tr>
<td>Diameter of cable:</td>
<td>6 mm, (1/4&quot;)</td>
</tr>
<tr>
<td>Safe load:</td>
<td>1 Person</td>
</tr>
<tr>
<td>Min. climber weight:</td>
<td>15kg, (33lb)</td>
</tr>
<tr>
<td>Max. climber weight:</td>
<td>150kg, (330lb)</td>
</tr>
</tbody>
</table>
AUTOBELAY DEVICES: **AEROBELAY**

A belaying system which features a steel propeller rotating at high speeds. The air drag generated by the propeller counteracts the descent of the climber, thus ensuring smooth descent with speed within the limits prescribed by the standard. The design of the device eliminates the small free fall which is inherent to belaying devices featuring centrifugal elements. Belay line retraction speed is high, which makes it suitable for speed climbing as well.

### Benefits
- Smooth descent without initial drop
- No braking pads
- No contact wear parts
- Low maintenance and simple to use
- Suitable for speed climbing: retraction speed of 4.5 - 5 m/s

### Dimensions

<table>
<thead>
<tr>
<th>21.4 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>430 mm</td>
</tr>
<tr>
<td>475 mm</td>
</tr>
<tr>
<td>294 mm</td>
</tr>
</tbody>
</table>

### Working principle and benefits

- Braking action is achieved by means of specially engineered steel propeller rotating at high speeds. Unlike traditional propellers, this one is designed to achieve high air drag, which improves its braking efficiency.

- Smooth descent and no initial drop: Aerobelay does not use centrifugal clutch system found in other autobelay devices, and for this reason the smooth descent starts right after letting go of the climbing surface. The absence of initial drop is very much appreciated by small children.

- No braking pads or wear parts: braking action is achieved solely by the air drag from the rotating propeller; there are no contact wear parts.

### TECH SPECS

| Device weight: 21.4 kg (47 lb) |
| Retraction speed: 4.5 - 5.0 m/s |
| Max. descent speed: approx. 1.7 m/s (67 ips) |
| Max. descent height: 16.5 m (54 ft) |
| Brake: Air drag from rotating propeller |
| Type of cable: Flat textile webbing |
| Safe load: 1 Person |
| Min. climber weight: 20 kg, (44 lb) |
| Max. climber weight: 150 kg, (330 lb) |
| Safety standard: EN 341: 2011 |
**AUTOBELAY DEVICES: **

The Self Belay is an innovative climbing connector, which increases safety in climbing and adventure centers by allowing users to climb only when they are properly attached to the device.

- Precludes possibility to clip in the wrong place of the harness
- Cannot be opened during climbing - users can disconnect from the auto belay device only when on the ground
- Participants as young as 5 years of age can use the device on their own
- Reduces number of staff members required for operation
- Compatible with both textile webbing and steel wire rope auto belay devices
- 360° swivel action to eliminate webbing/rope twisting
- Certified according to standard EN 362:2004T Personal protective equipment against fall from a height – Connectors.

**CONNECTING:**

1. Insert the Harness Piece in the Self Belay all the way down until it clicks.
2. Take away the Self Belay key.
3. You are now safely connected to the Self Belay and the auto belay device, and may start climbing.

**DISCONNECTING:**

1. Insert the Self Belay key in the device all the way in.
2. Remove the Harness Piece from the device gate.
3. You are now disconnected from the Self Belay and may move to another auto belay location.
“The biggest issue with modern auto-belays has nothing to do with the devices themselves—it’s human error. Forgetting to clip in is the number one cause of injury when using an auto-belay.”


Laser gate is a device that addresses the issue when climbers fail/forget to clip-in to the auto belay and start climbing without being attached to a belay device.

One of the main assets of the auto belay set-up is that one doesn’t need a belay buddy to climb. This also proves to be the biggest danger - the absence of a partner means lack of an extra set of eyes to perform the belay check before each climb. Most of the accidents occur in the middle of the climbing session after the climber has been doing laps from one auto belay to another doing climb after climb. The process becomes automatic and effortless in their goal to maximize the vertical distance climbed.

When a process becomes automatic and effortless, complacency and slackened attention to detail take over. The human factors of fatigue, repetition, and overconfidence—as a result of repetition—sets in and leads to error and respectively accidents.

**Working principle and benefits**

- System detects when the autobelay is attached to the wall to the sensor anchor (1) and activates an array of sensor laser beams (2) to monitor the wall at 2.5 - 3.0 m height.

- If a climber is detected to cross the sensor beams - the laser gate activates sound and light alarm to draw the attention of a supervisor or fellow climber.

- When the autobelay is detached from the sensor anchor (assuming it is safely clipped in to the climber’s harness) the system deactivates the laser beams and no alarm will be deployed.
TIMING SYSTEM FOR CLIMBING WALLS

CT2 timing system is designed for maximum precision in neck and neck speed competitions as well as everyday training for fitness or simply fun. The device has several timing modes including a customizable customer specific function to meet the needs of any climbing center. Safety Engineering is certified by IFSC for an official timing system manufacturer.

TIMING MODES:

STOPWATCH TIMER FOR SPEED CLIMBING
- With / without false-start control and reaction time measurement
- Individual or synchronous start
- Assisted Manual start or completely self-triggered Auto-start
- Individual timer activated with start signal or when the climber’s foot leaves the start-sensor
- Configurable speaker volume

COUNTDOWN TIMER FOR LEAD CLIMBING
- Configurable time limit
- Self-triggered or manual mode
- Option to announce last minute
- Configurable speaker volume

COUNTDOWN TIMER FOR BOULDERING
- Configurable time limit
- Auto-rotation or manual mode
- Option to announce last minute
- Configurable speaker volume

Timer Display
Finish Sensor
Start Tone Loudspeaker
Push Start Button
Start LED Semaphore
Start Sensor
The Walltopia timing system is easy to install and is suitable for a wide variety of climbing and amusement activities. It is a great solution for competitions, training and time measurements for entertainment purposes. The simplicity of the system allows easy self-installation. It is designed to be easily embedded in the climbing wall panels and fits perfectly any indoor climbing facility.

**COMPONENTS**

1. System electrical box.
2. Timer display body
3. Illuminated start / finish push-buttons.

*Exclusively designed for indoor use.

**Timer display body**

- 5 digit / 7 segment LED display high brightness
- Digit color: red
- Segment height: 180 mm (7 in)
- Segment width: 500 mm (20 in)

**Illuminated push-buttons**

- Can be installed anywhere on the wall
- Size: diameter may vary from 50mm to 100mm (2 to 4 in)
- Colors: various colors available

**System electrical box**

- Contains the main AC/DC power supply unit, safety switch and wiring terminal that connects the button control with the timer body.
- The system box is fully wired and tested.
- No additional set-up is required.
- Main power cord length: 5 m (16 ft), longer cord available upon request
- Input power supply: 100-240V AC, 50-60 Hz
ABOUT US

Safety Backers
Safety Engineering Ltd. was born in 2012 and aims to meet the growing demand of safety related products for climbing activities. The company emerged naturally from a department at Walltopia to an independent entity following the continuous growth of the global climbing industry.

We are dedicated to the development of safety engineering as a technical discipline. Our primary goal is to manage risk, eliminate or reduce it to acceptable levels. Safety Engineering aims to assure that a life critical system behaves as needed, even when components fail.

Experts in Our Field
For more than a decade our specialists have been gaining experience by creating innovations tailored to satisfy the needs of customers and have been keeping the highest standards of quality and performance of their work.

One of the founders of Safety Engineering is an engineering physicist. He later became our R&D Manager, to whom we are grateful for all our inventions. His name is Dimitar Petrov, also known as Big D.

Determined Innovators
We have the latest testing facilities at our disposal, used by our professional team of physicists and engineers to guarantee the utmost quality of each product. Our main purpose is to provide a large portfolio of certified products ensuring ultimate safety for climbers. The products offered under the Safety Engineering brand are initially designed to bring additional value to climbing wall users. Safety Engineering offers a portfolio of cutting-edge products that ensure maximum protection while climbing.