

SMART BELAY COACH TRAINER TOOL

EDELRID 



◆◆ CREATIVE TECHNOLOGY.

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1. INTRO

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THE SMART BELAY - THE REVOLUTION IN SELF BELAYING SYSTEMS

The Smart Belay - A revolution in self belaying systems. Ropes course's carry a risk that with standard belay systems, participants can accidentally disengage from the safety system completely.

EDELRID has produced a solution for high ropes course operators with the revolutionary Smart Belay.

The Smart Belay is a system of inter communicating carabiners with integrated pulleys offering a new level of security. If one carabiner is open, the other carabiner "recognizes" this and can't be opened. The opening mechanism remains locked on one until the other carabiner is re-attached to the safety rope and locked. Only then can the trigger be opened to remove the other carabiner. This makes accidental unlocking under proper use virtually impossible. For this revolutionary concept in self-protection the Smart Belay received the OutDoor Industry Award for innovation.



SMART BELAY

2. SYSTEM PARTS

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2.1. CARABINER

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The Carabiner conforms to EN 362 and in addition the pulley Standard EN 12278. The integrated pulley¹ is suitable for use on steel ropes with a diameter from 10 to 14 mm and replaces the need for double pulley systems for Zip lines. The pulley carabiner is fitted with a double action safety mechanism - Button² and trigger³

The Maintenance slots 4 are used to adjust the cable tension. (see Technical Guide).



2.2. LANYARD

The lanyard complies to EN 354 and is a² colored Y tape construction. The green tape is the load bearing webbing whilst the black tubular tape is the housing for the cable³. The net is sewn in to prevent accidental threading or placement of fingers hands arms etc, between the two tapes.

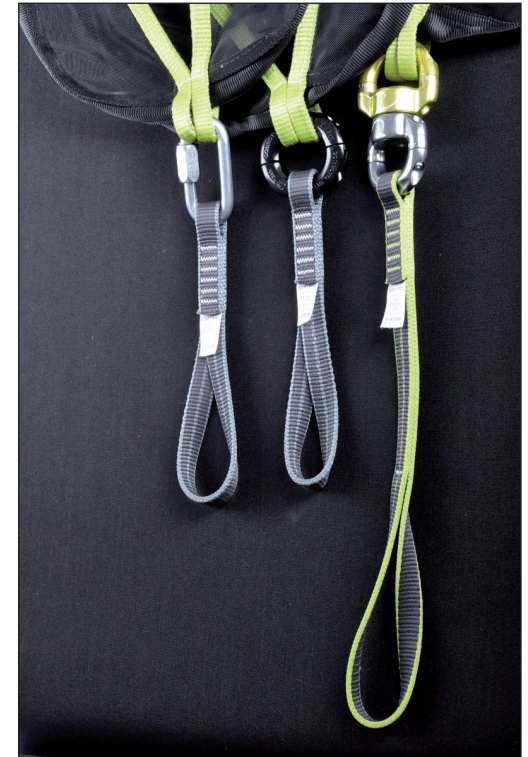


2.3. ATTACHMENT ELEMENTS

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Further connecting elements for the Smart belay are Connecto¹ or Connecto Swivel² which comply to EN 354, as well as Maillon-Rapide/quicklink³ (EN 362). These can be used to attach the Smart Belay directly to the harness. There is also a Tie in Loop⁴ in two different lengths to provide additional extension to the system if required. The tie in Loop is connected to the harness using a girth hitch/larks foot knot.

A further option is the Shock absorber which can replace a fall protection system in the Park.



3. FUNCTION

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FUNCTION

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3.1. UTR PRINCIPLE

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One carabiner is unlocked by applying pressure with the thumb to the green button² followed by squeezing the black trigger with the fingers³ (the pressure required is low and suitable for children). While one carabiner is open the other remains locked and cannot be opened⁴. The carabiner communication takes place using a specially designed internal cable. The open carabiner can be placed on the safety cable and locked by pulling down on the carabiner⁶. In addition to the visible closure of the lever there is a clearly audible „clicking“ sound (also useful for the coach on the ground). The second carabiner can, as previously described, now be opened⁷ and attached to the safety cable⁸ and locked⁹.

When both carabiners are closed, the Smart Belay system is in the neutral position, i.e. either one of the carabiners can be opened¹⁰ (allows directional freedom of movement on the course and between exercises). Self-belaying and moving through the course by the participant comes naturally using the UTR Principle¹¹⁻¹⁸. Furthermore this system is similar to the techniques and teaching of a standard safety cable and basic lanyard (lobster claw) setup making it easy to understand for both trainer and participant.



3.2. ZIP LINES

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The Smart Belay can also be used as a double pulley system for Zip lines. Here the Smart Belay excels by smoothly running on the steel cable. The safety and self belay method is as with all other elements, done by applying the UTR principle and allows the participant to connect to the Zip lines independently of a trainer. The zip line cable is used as the safety cable so transfer is the same as transferring between elements. The Smarts integrated sealed ball bearing pulleys attach directly to the zip line.



3.3. EXIT

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Smart Belay courses have at every exit a suitably marked exit device (e.g. a steel stud or staple with an opening). After the last exercise applying the UTR principle one carabiner is attached and then the other and then both can be rolled off the stud or staple. You can also have a long safety cable at the ground level that the Smarts and harnesses stay at and a trainer removes the Smart from the system.

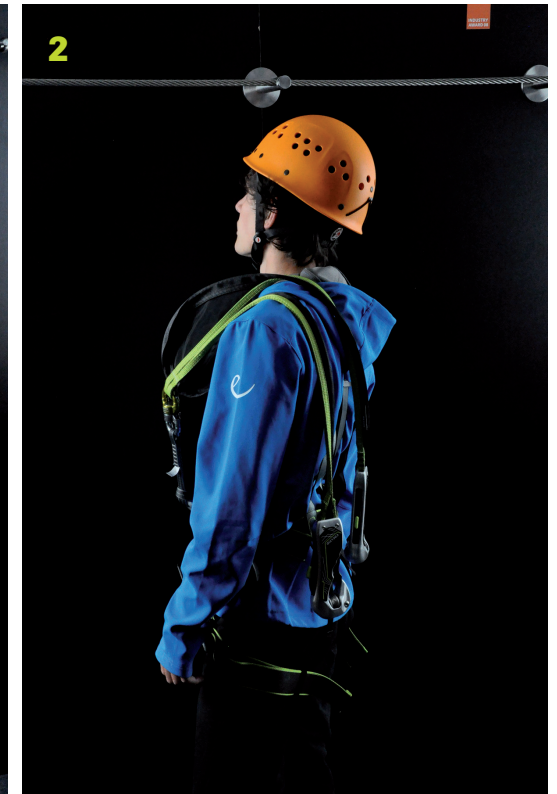


4. GUIDELINES FOR THE COURSE

4.1. TRANSPORT

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EDELRID recommends for transport by course participants the Smart Belay Holster¹. Alternatively, the Smart Belay can also be put over the shoulders². Both techniques are used to keep the Smarts off the ground



4.2. HANDLING WITHIN THE PARCOURS

4.2.1. UTR PRINCIPLE

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The UTR principle is conducted with one hand, the carabiner opening both face the same direction, closing and locking is done by pulling on the bottom of the carabiner until an audible click is heard or it can be seen that the lever is closed. Make sure that the branches of the connecting lanyard run parallel to each run, and don't get twisted around each other.



4.2.2. CARRYING

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The proper method of carrying or moving the Smart Belay on the course is with both carabiners closed, the Smart Belay to one side of the head, in front of the body. Care should be taken that the lanyard leashes run parallel to each other and don't become twisted.



4.2.3. ZIP LINES

On Zip lines always make sure that both carabiners are closed, the lanyard leashes run parallel to each other and don't become twisted¹. Before starting sit in the harness slowly weighting the system² then start³.



5. CARE/STORAGE*

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Only a clean smart Belay is a good smart Belay.

Daily:

Visual and performance test

Visual inspection of karabiner, lanyard, connector.

Weekly:

Control screws with torque wrench

Lubrication as needed.

Monthly:

Precise visual inspection of all components - stitching, ridges, edges, screws

YEARLY MAINTENANCE AND SERVICE:

To be done by an Edelrid certified technician, this must be done in order to re-warranty and re-certify the Smart Belay.

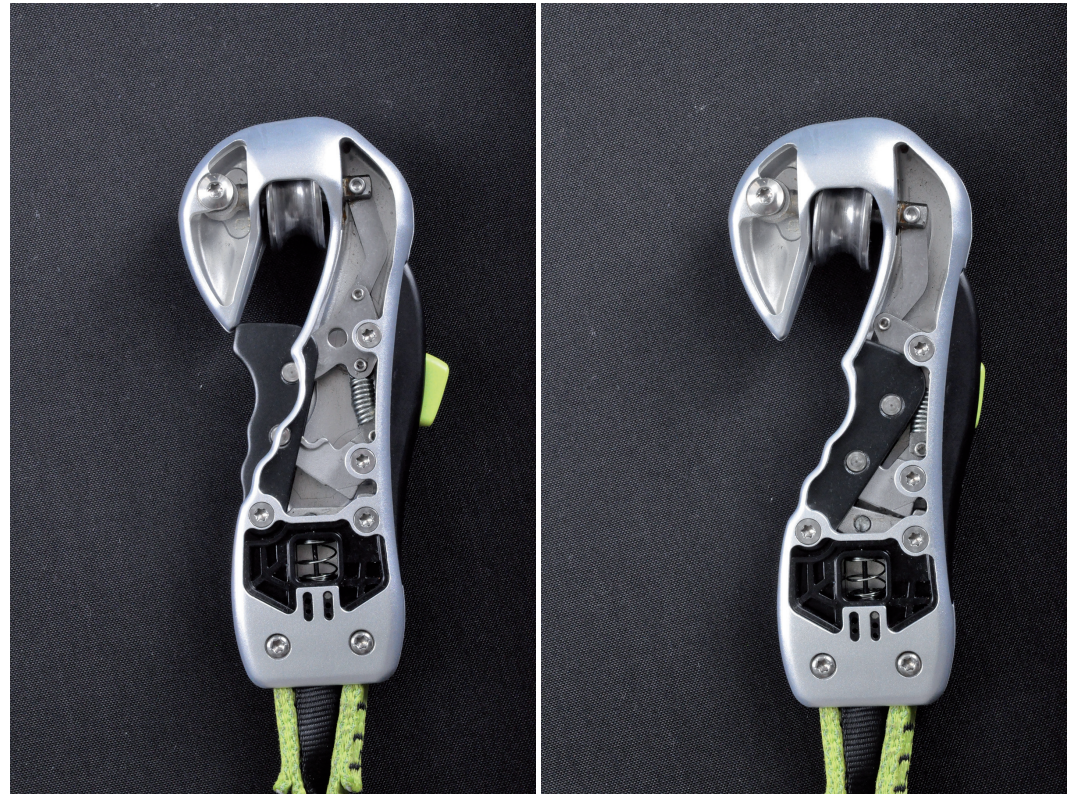
*See Technical Training manual.



5.1. MECHANICS

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The mechanics of Smart Belay make a more complex device than standard lanyards. This means due care and maintenance of the unit is needed.



5.2. CARE

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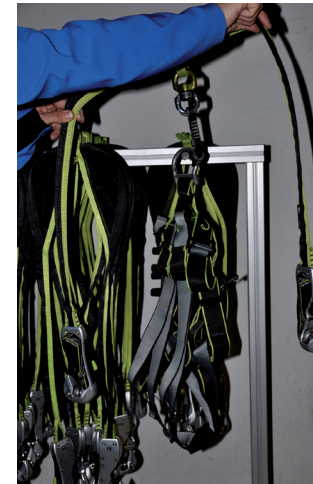
Lubrication of the internal moving parts maybe necessary to time if the Lever becomes stiffer. For this purpose solvent-free oil should be used. Using a long grease nipple which can be pushed into the Smart Belay from the top of the lever down towards the bottom as far as the nipple will go.



5.3. STORAGE

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EDELRID recommends that the Smart Belay be stored in a free-hanging position, untwisted, load-free and in a clean and dry environment.



5.4. UNIT CONTROL*

All screws on the Smart Belay should be checked, in accordance to PPE directive, before being released to customers and if necessary tightened using the predetermined torque.

*See Technical Training



6. FUNCTION TESTING*

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The Smart Belay system must undergo a function test before being handed out to the customer. Here both carabiners are checked for failure free communication. This means one carabiner is opened and the other carabiner must be locked with no movement or play in the button or trigger.



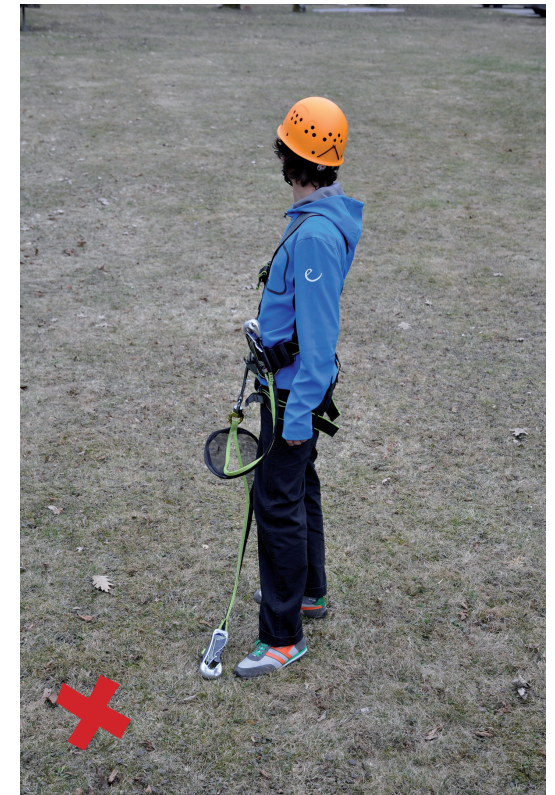
*See Technical Training

7. PREVENTION

7.1. TRANSPORT

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The Smart Belay is a part of the personal protective equipment (PPE) for each participant and must always be protected from soil, dust and moisture, and carried or transported accordingly. i.e. The Smart Belay must not be dragged or dropped on the ground at any time as this may lead to damage or loss of function of the unit. In such cases the warranty will be void.



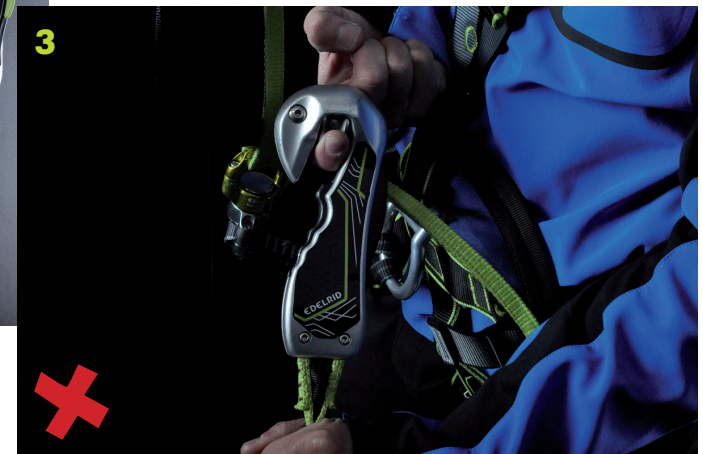
7.2. UTR PRINCIPLE

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If one carabiner is already unlocked and the lever open, it is forbidden to attempt to forcibly try and open the second carabiner¹. This will lead to mechanical damage and to the loss of the warranty. The locking of the Smart Belay by pulling on the lanyard² is forbidden as this will lead to mechanical damage and to the loss of the warranty.

Apart from the steel safety cable or exit device (steel stud or staple), attaching the Smart belay to any other element (branches, harness, lanyard etc.) should be strictly forbidden- Under the threat or danger of falling!

A deliberate, manual override of Smart belay locking system³ is strictly forbidden- under the threat or danger of falling! (see point 8).



7.3. MOVING ON THE COURSE

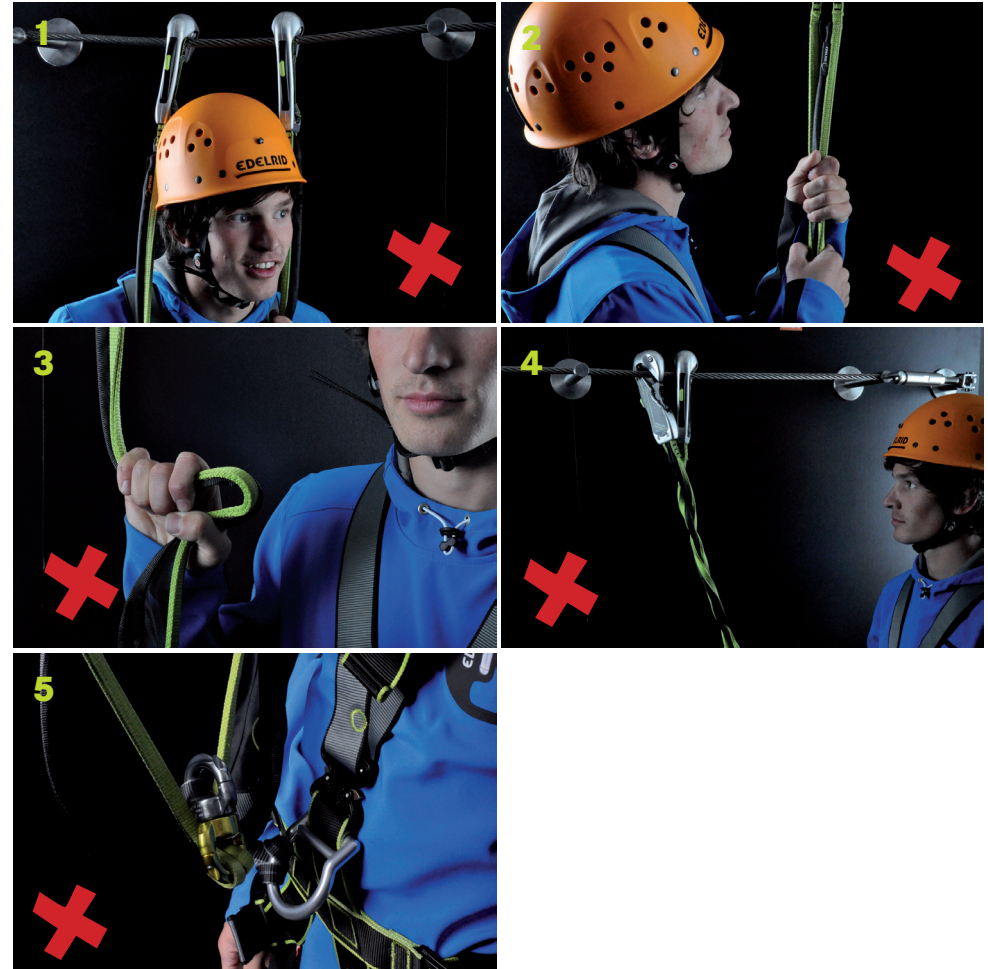
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When moving the Smart belay on the course it should be ensured that your head does not get between the lanyard branches 1. This can lead to strangulation. Forcible or violent pulling of or jumping into the lanyard should be forbidden 2. This will damage the mechanism and lead to loss of the Warranty.

Long hair should be kept tied back at all times it could result in injury!

The lanyard must not bend 3, or twisted in itself or against each other 4 and not rotated at the tie in point 5.

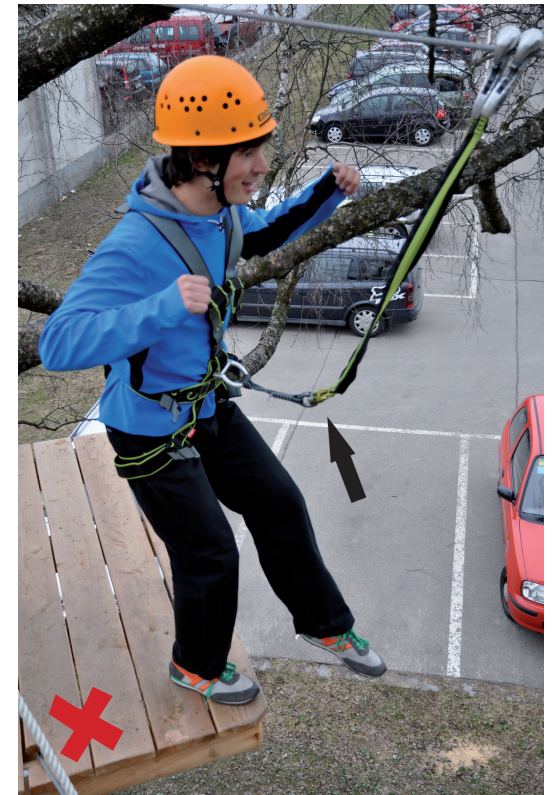
During the exercises keep fingers away from the carabiners. Danger of trapping or squashing of fingers!



7.4. ZIP LINE

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Jumping into the Zip-line is prohibited. This leads to damage to the mechanism and thus could void the warranty.



8. PARTICIPANT BRIEFING

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Before entering the course each participant should be instructed in the correct and safe use of the Smart Belay in a designated area by a trainer.

Tip:

The course is shown and explained to the participants. Afterwards it should be pointed out to the participant that he or she is protected from falling during the course by the Smart Belay and then follows an explanation of the UTR principle.

As a rule this introduction to Smart Belay should be sufficient (less is more).

Participant's questions should be answered in a short but concise and open way. Answers need to be formulated in a positive way. Most trainers know the common questions. The recommendation is: Answers to common participant questions should be practiced by the trainer staff. For example: If asked about potential manipulation of the unit by pressing the pulley with the fingers one answer might be: „every system is only as good as the person who stands behind it and uses it. The Smart Belay is there for the safety of the participant and prevents unconscious or unintentional complete unhooking from the safety system. A deliberate and conscious manipulation leading to a complete unhooking by the user is possible. The result of such a manipulation of the system is life endangering and could be fatal.”

9. RESCUE

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In an emergency situation, the trained staff will decide which of the park-specific rescue methods is needed.

Advice for the Smart Belay:

A common rescue situation is the participant hanging (usually through exhaustion or falling off the element) from the safety line. In most cases with a basic lanyard (lobster claws) self-belaying system it's not possible to go forwards or backwards with the participant which then requires a complex and time consuming recovery with the participant being lowered to the ground. With the Smart Belay system it is, on most horizontal elements, possible to pull or push the participant to the next platform. Often this can be done by the participants themselves with instructions from a trainer below. The elements in the exercise are used as a handrail by the participant. Also a participant on the element directly behind them can assist. If the Smart Belay system is blocked (neither carabiner will open), an exchange of the Smart belay on the course is possible by the rescue trainer. After the participant has been secured by the rescuer with a new Smart belay to the steel safety wire, the blocked Smart Belay can be released by cutting the cable directly below the carabiner.

(See technical guide).

10. BENEFITS AT A GLANCE

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- All benefits of a classic self-belaying system (basic lanyard or lobster claws) remain:

The Participant is responsible for their own safety with the Smart belay system. In addition and similar to a basic lanyard, overtaking, evasion or rapid evacuation of the participants from every platform is possible with minimal trainer input.

- The innovative concept of the Smart belay helps prevent a complete accidental unhooking from the safety system.
- Simple Closure test for participants and trainers, visible control of the lever in its locked position is possible.
- Smart Belay means „Keep it simple“. The Smart Belay presents a clear and intuitive belaying method for all exercise elements including Zip lines.
- There is no extra introduction of self-belaying on Zip lines or the need for a double pulley which gives increased security during transition to the zip line. The participants focus is directed more to the exercises in the park with the emphasis on the experience and having fun.

- The Pulleys in the carabiner ensure low wear on the cable and replace the need for double pulleys.
- The carabiners centre of gravity is below the roller, giving perfect positioning of the pulley on the safety cable at all times.
 - Easy and fast recovery of the participants even if hanging in an element
- The outstanding ergonomics of the Smart Belay make its operation by children easy
- Optional for the Smart Belay are energy absorbers (6 kN) which can in theory replace fall protection systems.
- More security for participants, less risk for the course operator.
- Easy integration into existing systems. (EDELRID recommended minimum system requirements: Steel safety cable diameter 10 - 14mm, recommended height of Steel safety cable 160cm to 210cm, on course elements with height differences safety stoppers should be attached to the cable at intervals

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