

## HEAD RUSH TECHNOLOGIES WHITE PAPER

# INSTALLATION AND OPERATION OF CONTINUOUS AND SMART BELAYS WITH QUICKFLIGHT AND QUICKJUMP

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June 2019

Smart and continuous belay systems can mitigate risk and reduce the number of employees required to staff an adventure course. For these reasons, along with the ease of integration with Head Rush products, we allow the use of smart and/or continuous belay systems with the TRUBLUE, QuickFlight, QUICKjump and zipSTOP\*.

The information in this paper is meant to help qualified persons when designing a smart or continuous belay system that interacts with a QuickFlight or QUICKjump on a descending element and should not be applied to other Head Rush Technologies devices. Each smart and continuous belay system has unique requirements, therefore a qualified person should always design and ensure compatibility of the system prior to use, even those shown in this paper. Confirm that the installation, operation and maintenance of all equipment follows its respective user's manual and that all parties are suitably trained in the use of the equipment to ensure proper function.

*\*Head Rush has not evaluated any of the products listed in this white paper. Testing by a qualified person is required to confirm compatibility. The products shown in this paper are provided as representative of the existing technology available at time of publication.*

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## DESCRIPTION OF SYSTEMS

Each smart and continuous belay system has its own unique features and can mitigate risk in different ways. The systems can be used with the QuickFlight and QUICKjump so long as they meet the requirements of the authority having jurisdiction and the system is designed and installed by a qualified person.

### Smart Belays

Smart belays generally consist of lanyards with communicating connectors that help to reduce the likelihood of accidental detachments from a safety system. Examples of smart belays include, [Bornack SSB](#), [ISC SmartSnap](#), [CLiC-iT Adventure System](#) and [Edelrid Smart Belay](#).

### Continuous Belays

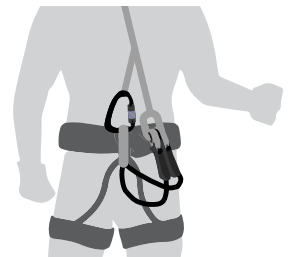
Continuous belays consist of lanyards with connectors that remain attached to the life safety system throughout the entirety of the course. Examples of continuous belays include [Kanopeo SAFEROLLER](#) and [SPEEDRUNNER](#), [Kong COUDOU PRO](#) and [Vertical Trek Innovations QuickTrekker](#).

### Smart and Continuous Belays as the Primary vs Secondary Connector

When implementing a smart or continuous belay system in conjunction with the QuickFlight or QUICKjump the smart or continuous belay should act as the secondary connector when attached to the device webbing.

### Secondary Connector

Using a smart or continuous belay as the secondary connector means the smart or continuous belay will be connected to the QuickFlight or QUICKjump webbing but will not be under tension during use. Instead, a suitable carabiner or connector that meets the requirements of the authority having jurisdiction, will be the primary connector and hold the weight of the participant during use. When installed as a secondary connector, the smart or continuous belay system should only be loaded in the event of a failure or improper connection to the primary connector or carabiner.



## SMART AND CONTINUOUS BELAYS AS THE SECONDARY CONNECTOR

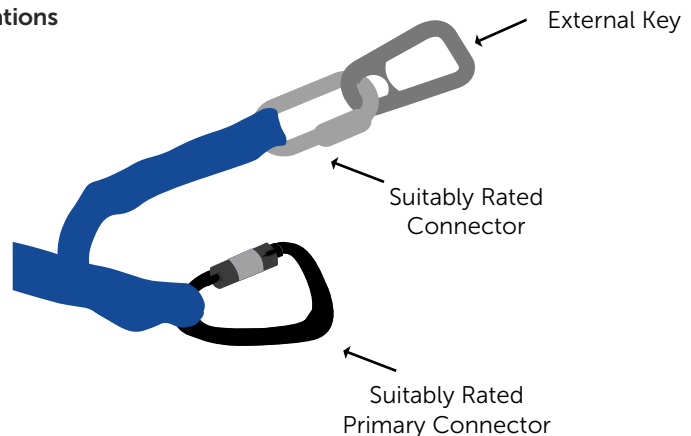
When using a smart or continuous belay as a secondary connector with a QuickFlight or QUICKjump, the secondary carabiner that comes on the QuickFlight webbing can be removed. When using a smart or continuous belay as a secondary connector with a QUICKjump, see our white paper [QUICKJUMP WEBBING SECONDARY ATTACHMENT POINT](#) on adding a secondary connection point to that webbing.



### Installation of Smart Belay Systems

1. Many smart belay manufacturers have an external key for their smart belay system that the system manufacturer says should be used when connecting to the QuickFlight or QUICKjump webbing. These external keys should be evaluated by a qualified person before installation to ensure they're suitable for the application and meet the requirements of the authority having jurisdiction. External keys include but are not limited to:
  - a. [C-Connect](#) and [C-Connect V2](#) for the CLiC-iT system
  - b. [Tweezle 9](#) for the Bornack SSB system
  - c. [Key Ring](#) for the ISC SmartSnap
  - d. Edelrid Smart Belay does not manufacture a specific external key. Instead, a suitable connector, large enough to attach both Smart Belay connectors to, may be used as the attachment point to the webbing.
2. Connect the external key to the secondary connection point with a suitably rated connector that cannot be removed by a participant.

### Possible Installations

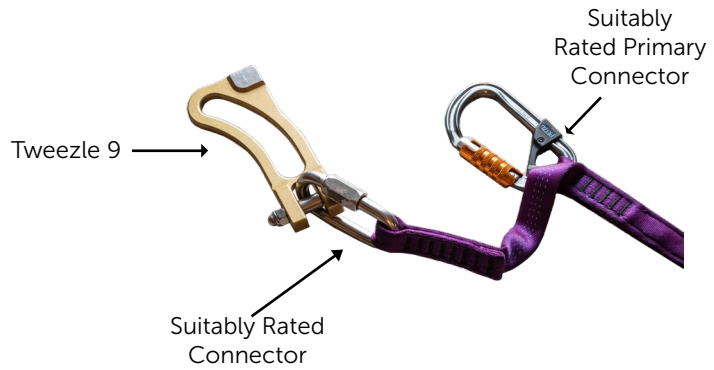


Below are images of external keys connected to the webbing. The below images may or may not be suitable for a specific installation depending on the systems requirements. A qualified person must design and install the system to ensure compatibility and proper function of the devices in use.

**CLiC-iT**



**Bornack SSB**



**ISC SmartSnapOperation**

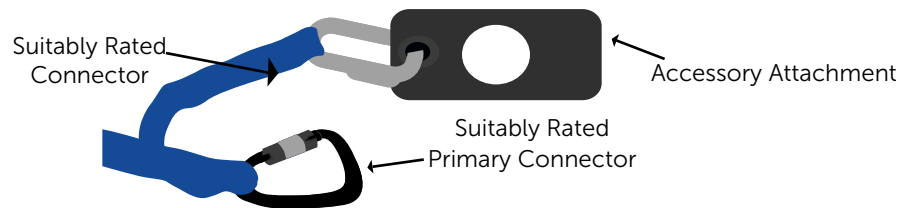


### Installation of Continuous Belay Systems

1. Most continuous belay manufacturers have an accessory attachment for their system that the manufacturer says should be used when connecting to the QuickFlight or QUICKjump webbing. These accessory attachments should be evaluated by a qualified person before installation to ensure they're suitable for the application and meet the requirements of the authority having jurisdiction. The accessory attachments include, but are not limited to:

- a. [AccroCONNECT](#) for Kanopeo SPEEDRUNNER
- b. [ZAZA2 Connect 2.0](#) for Kong COUDOU PRO
- c. [CBS Transfer Unit](#) for Vertical Trek Innovations QuickTrekker

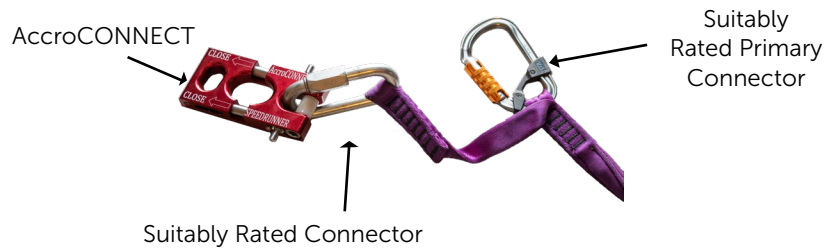
2. Connect the external key to the secondary connection point with a suitably rated connector that cannot be removed by a participant.



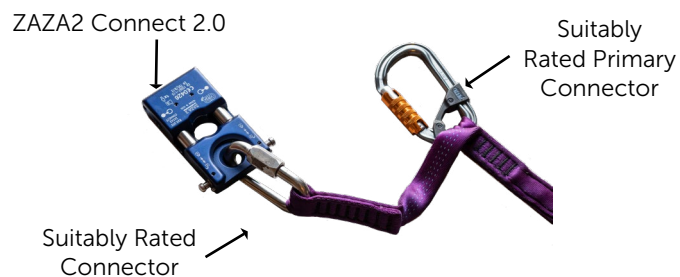
### Possible Installations

Below are images of external keys connected to the webbing. The below images may or may not be suitable for a specific installation depending on the system and the authority having jurisdiction's requirements. A qualified person must design and install the system to ensure compatibility and proper function of the devices in use.

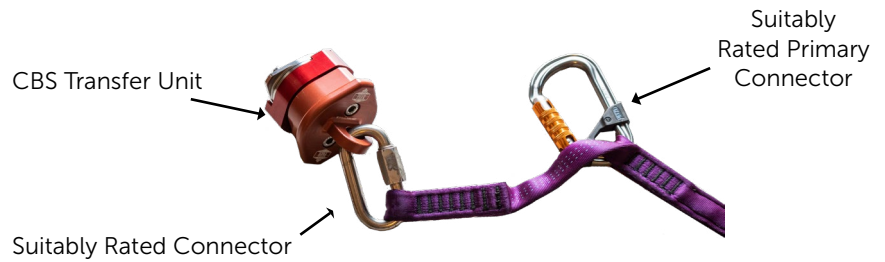
#### Kanopeo SPEEDRUNNER



#### Kong COUDOU PRO

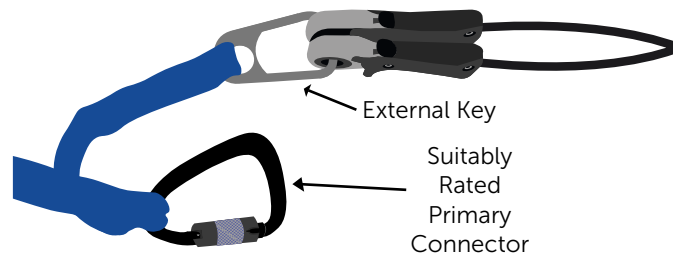


### Vertical Trek Innovations QuickTrekker

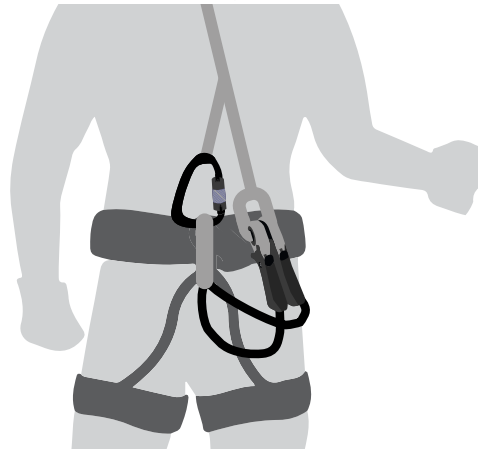


### Operation

1. Participant or guide connects themselves directly to the external key or the accessory attachment.



2. Participant or guide connects the primary connector to the harness's hard point.



3. The smart or continuous belay is the secondary attachment to the QuickFlight/QUICK-jump and should not be under tension during ascent or descent.
4. The participant must not be able to descend or ascend the element unless they're suitably attached to the QuickFlight/QUICKjump.
5. Once the participant reaches the end of their ascent or descent, the smart belay connectors can be detached from the QuickFlight/QUICKjump and if necessary connected to a suitable lifeline.
6. The participant or guide can then disconnect the primary connector from the harness.

### **Considerations**

- If the secondary attachment is engaged, due to an improper primary attachment, the added length of the smart or continuous belay lanyard may create slack in the system. The slack can result in a jolt during initial descent and may cause the connectors to collide with the participant.
- Proper testing must be completed to ensure compatibility of systems
- Smart and continuous belay manufacturers may not allow for impact loading beyond a certain point on their systems. Ensure operations are within the manufacturers requirements.
- Ensure participants cannot become entangled in the smart or continuous belay lanyards during descent.
- Never permit the webbing line to wrap around legs, arms, neck other body parts or loose clothing of the participant.
- Ensure participants hands are free and clear of connectors during descent. Loading may cause a pinch hazard.
- Always adhere to all operating conditions set forth in device manual.
- Prior to descent, ensure descent path and landing area are free of people and obstructions.
- Proper fall attenuation surfaces must be in place