

BOOSTSUIT **Z1**
Knee Exoskeleton

USER MANUAL

Content

About Dnsys	1
Package Contents	2
- In the Box	
- Product Overview	
- Specs	
Quick Start	8
- Download Dnsys App	
- Sign Up & Log In	
- Charging the Battery	
- Wear & Fitting Guide	
User Guide	12
- Prepare the Product	
- Belt Fitting	
- Connecting & Fitting the main units	
Device Activation & Connection	33
New User Tutorial (Mandatory)	36
Mode Switching	38
Battery & Charging	42
Safety Statement	43
Contact Us	44

About Dnsys

Dnsys is a global leader in exoskeleton innovation, on a mission to empower humans with technology for greater freedom, strength, and connection.

Since the founding of Dnsys, our company has advanced the commercialization of exoskeletons, building an industry-leading ecosystem that spans both medical and consumer applications.

In 2024, the X1 hip joint consumer – grade exoskeleton was launched.

In 2025, the world's first knee joint consumer – grade exoskeleton was released.

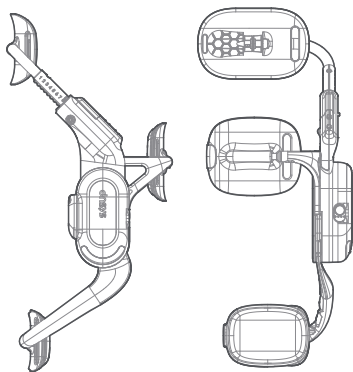
Guided by the "Human × Nature × Technology" philosophy, Dnsys creates exoskeletons that harmonize with the human body and natural movement—avoiding replacement, focusing on extension. As the world's only provider of modular, multi-joint, scalable exoskeletons, Dnsys turns sci-fi-inspired innovation into an affordable reality, making advanced mobility accessible to all.

For more details, please visit

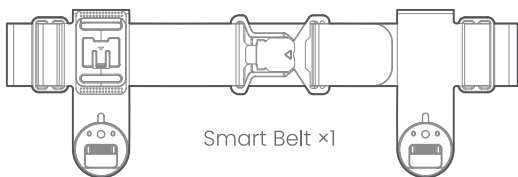
<https://dnsys.ai>

Package Contents

In the Box



Z1 Main Units



Smart Belt ×1



Thigh Straps ×2



Knee Straps ×2



Calf Straps ×2



PD Cable ×1



PD Adaptor ×1



Power Plus ×1

×2 For PRO



Charger Plus ×1

×2 For PRO

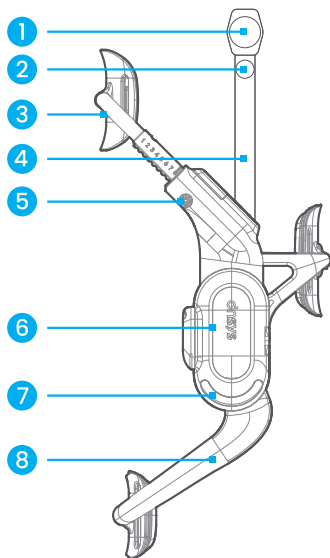


Hex-Key

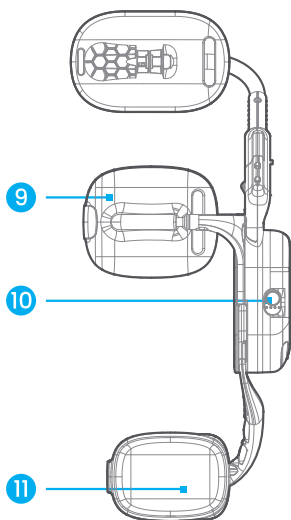
ATTENTION:

For the X1, the battery type is "Smart Battery," and it should be used with the "Smart Charger". For the Z1, the battery is "Power Plus" and requires the "Charger Plus". Under no circumstances should these batteries and chargers be used interchangeably.

Product Overview



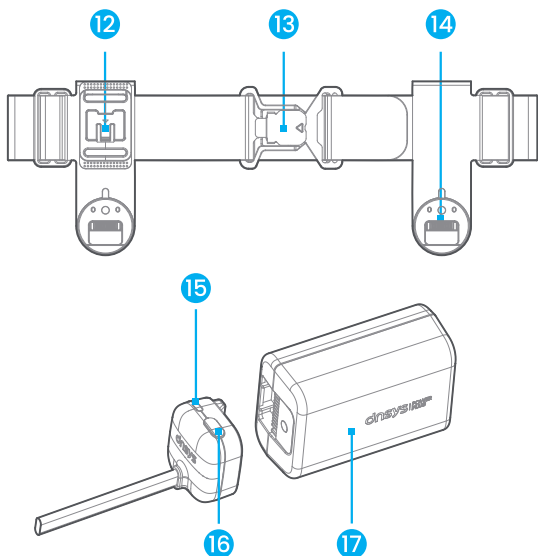
- 1 Quick Release Plug
- 2 BOA Dial
- 3 Thigh Plates
- 4 Suspension Strap
- 5 Thigh Rod Adjustment Button
- 6 Motor
- 7 Motor Status LED
- 8 Calf Rod



9 Mid-Thigh Plates

10 Control Button

11 Calf Plates



- 12 Battery Mount
- 13 Magnetic Buckle
- 14 Blade Connector
- 15 HUB LED
- 16 HUB Control Button
- 17 Power Plus

Specs

	BOOSTSUIT Z1	BOOSTSUIT Z1 PRO
Battery Life	4h	8h(2× Batteries)
Peak Power	900W	900W
Body Weight Pressure Reduction	up to 200%	up to 200%
Thigh & Calf Boost	50%	50%
Upward Support	up to 20kg/44lbs	up to 20kg/44lbs
Usage Scenarios	Daily / Hiking / Cycling	Daily / Hiking / Cycling / Skiing

Suitable User Range:
1.5m - 1.95m (4'11" - 6'5")
40kg - 122.5kg (88lbs - 270lbs)

Quick Start

Download Dnsys App

Scan the QR code below to
download the Dnsys official App
(supports iOS/Android systems)



Sign Up & Log In

After starting the APP, click "Register Account" and follow the prompts to enter your mobile phone number and verification code to complete registration, or log in quickly via third-party accounts (Apple ID/Google Account)

The image shows a mobile application login interface. It features two input fields: "E-mail:" and "Password:". Below these is a dark "Sign in" button. Under the button is a checkbox with the text "I have read and agreed to the <Privacy Policy>". A dashed line with the word "OR" in the center separates this from two circular icons: a Google "G" logo and an Apple logo. At the bottom, there is a link that says "Don't have an account? SIGN UP".

E-mail:

Password:

Sign in

☐ I have read and agreed to the <Privacy Policy>

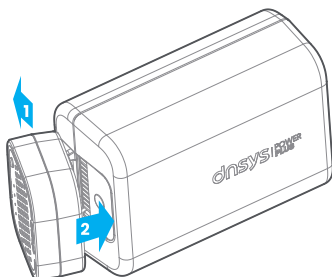
----- OR -----

Don't have an account? [SIGN UP](#)

Charging the Battery

- 1 Connect the Charger Plus to the Power Plus



- 2 Connect the PD cable from PD adaptor to Charger Plus. We recommend using the provided adaptor and cable.

ATTENTION:

For the X1, the battery type is "Smart Battery," and it should be used with the "Smart charger". For the Z1, the battery is "Power Plus" and requires the "Charger Plus".

Under no circumstances should these batteries and chargers be used interchangeably.

Wear & Fitting Guide

Scan the QR code below to watch the "Z1 Standard Wearing Tutorial" video. Follow the instructions to adjust the fit, including strap tension and component alignment.



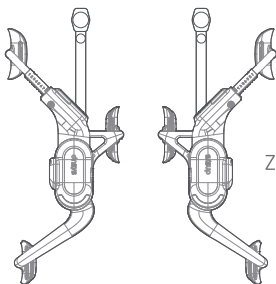
ATTENTION:

Ensure components align with your joints. Adjust straps to a comfortable tightness without restricting blood circulation.

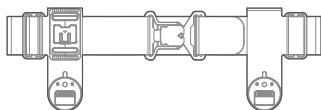
User Guide

Prepare the Product

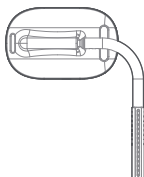
Take out the Main Units, Belt and 2 thigh plates each from the package.



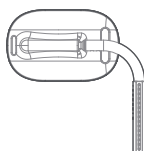
Z1 Main Units



Belt

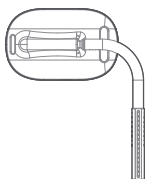


Long Plate ×2

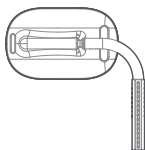


Short Plate ×2

Identify the long vs. short thigh plates and check the Left / Right markings.

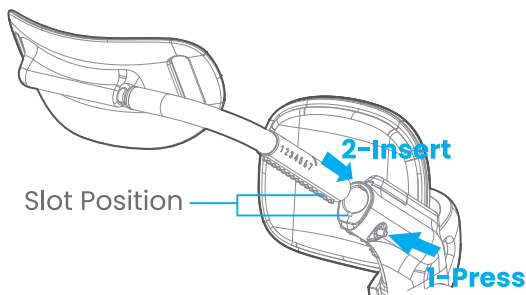


Long Plate ×2



Short Plate ×2

Align the thigh support plate with the slot on the back of the main unit, pull the support plate gently to confirm it is not loose, and complete the pre-installation



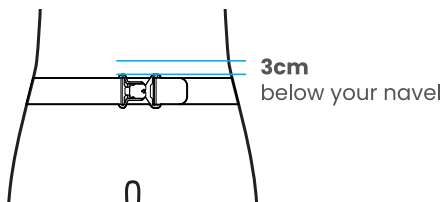
Belt Fitting

NOTE:

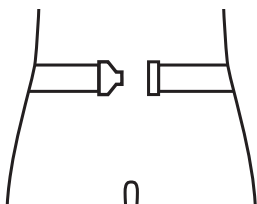
Video tutorial recommended for best results.

1- Prepare the Waist Belt

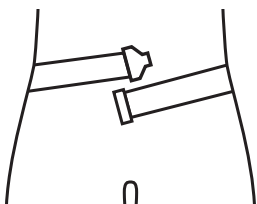
1-1 Unfasten the magnetic buckle and place the belt around your waist. Ensure it sits 2-3cm below your navel.



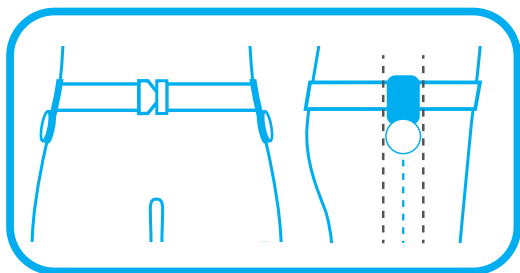
1-2 Check if the belt is too loose or too tight. Ensure the blade connectors are aligned with your trouser side seams (within 2-3cm).



✗ TOO TIGHT



✗ TOO LOOSE



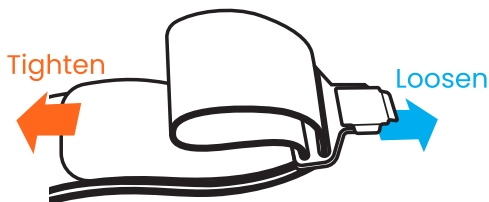
✓ CORRECT!

2- Adjust as Needed

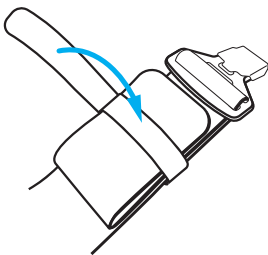
2-1 Adjusting Waist Belt Length

- Adjust the belt length using the strap at the magnetic buckle, as shown.

***The adjustment method is identical to using a standard belt.**

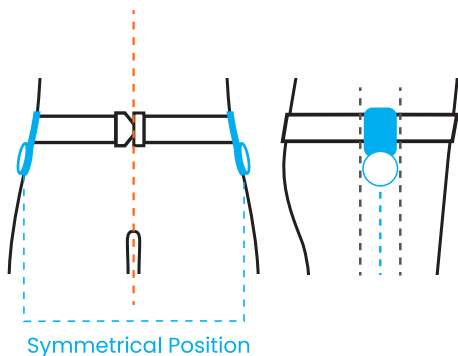


- **TIP:** Secure excess strap with the provided loop



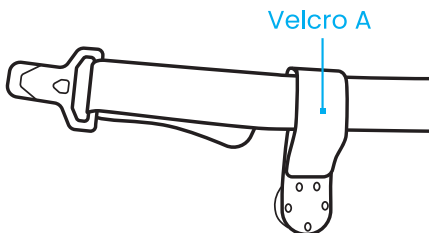
2-2 Positioning the Blade Connector

- After adjusting the length, fasten the waist belt and center the magnetic buckle (positioning it 2-3cm below the navel, as previously shown). Check the Blade Connectors: they should be located within 2-3cm of your trouser side seams. Ensure the left and right connectors are symmetrical.



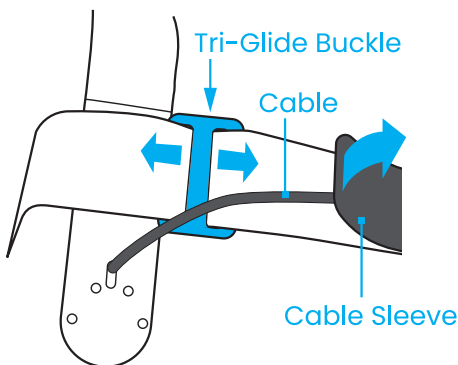
- If adjustment is needed

a- Unfasten Velcro A



b- Slide the tri-glide buckle to adjust the position.

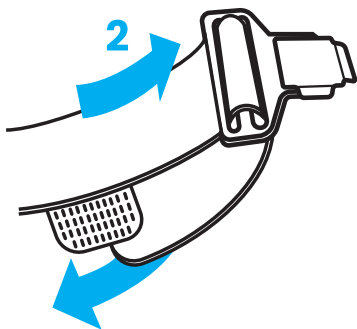
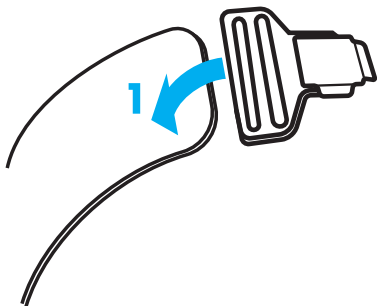
Once positioned, open the cable sleeve to tidy up the cabling (if necessary).



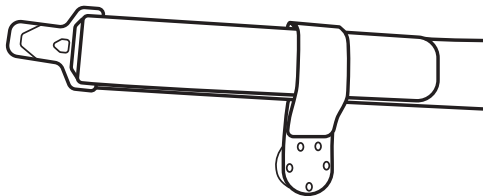
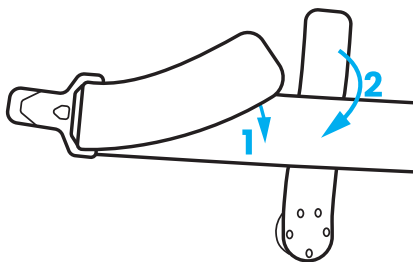
Alternative Method:

If the excess strap is too long to stow neatly:

Completely unthread the belt from the magnetic buckle and re-thread it in the reverse direction, as shown below.

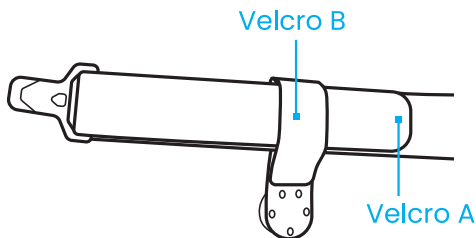


On the inside of the belt:
Stow the excess strap as shown and
fasten the Velcro firmly.

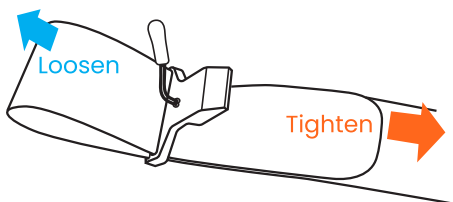


Alternative Method:

If the excess strap is too long to stow neatly:



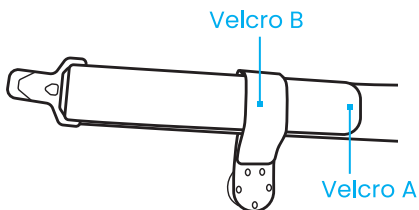
- When adjustment is needed, unfasten Velcro A and B as shown above. Then adjust the belt length as below. Test the fit on your waist — it should feel similar to a standard daily belt.



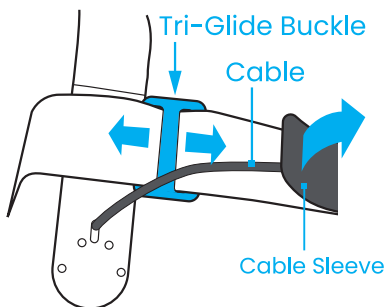
Alternative Method:

In this case, adjust the Blade Connector as follows:

a- Unfasten Velcro A & B.



b- Slide the tri-glide buckle to adjust the position.
Once positioned, open the cable sleeve to tidy up the cabling (if necessary).



- c- Repeat for the other side
(both connectors are adjusted
the same way).
- d- Securely re-attach all Velcro straps
after adjustment.

PRO TIP:

While wearing the belt, use a marker or tape to mark the correct position of the Blade Connectors. This allows for quicker and easier adjustment

For the best experience:

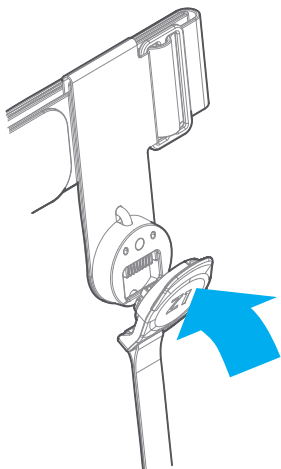
please perform a final check to ensure the waist belt length and magnetic buckle position are as described above.

Main Unit Connection & Fitting

1- Connect the quick-release plug

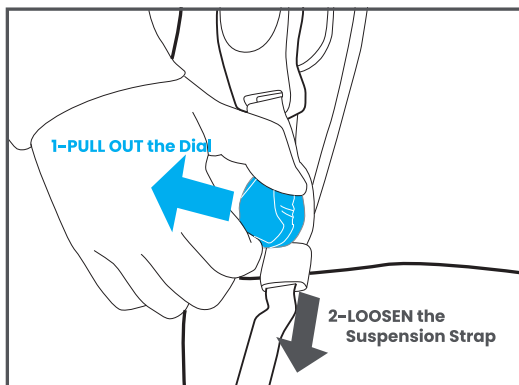
Align the left main unit with the blade connector on the left side of the waist belt.

The magnetic force will automatically attract when close, and push the main unit gently until it is fully fastened.

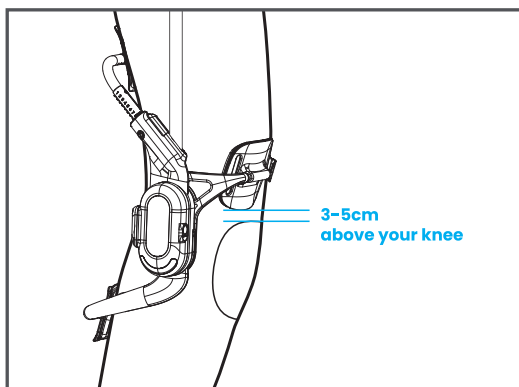
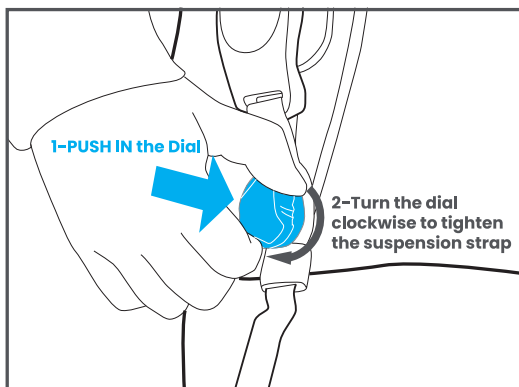


2- Wearing the Mid-Thigh Plate

2-1 After attaching the quick-release connector, pull out the BOA dial and fully loosen the suspension strap.

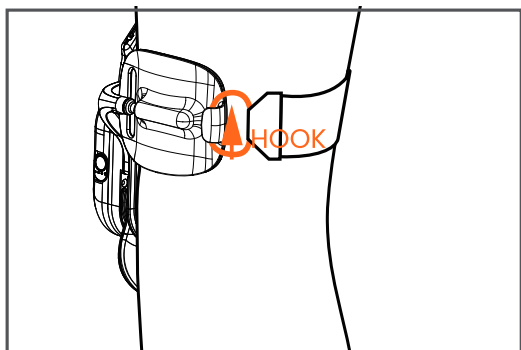


2-2 Stand up. Push in the BOA dial and turn it clockwise to tighten the suspension strap. Adjust until the bottom edge of the mid-thigh plate sits 3-5cm above your knee.



2-3 Tighten the Knee Strap and hook the orange cord loop onto the hook on the Mid -Thigh Plate.

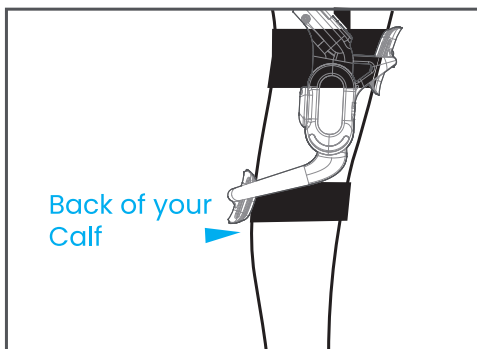
Adjust the strap for a snug fit
— firmly secured to prevent slipping,
but not tight enough to restrict
circulation.



3- Secure Calf Plate

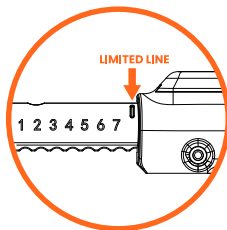
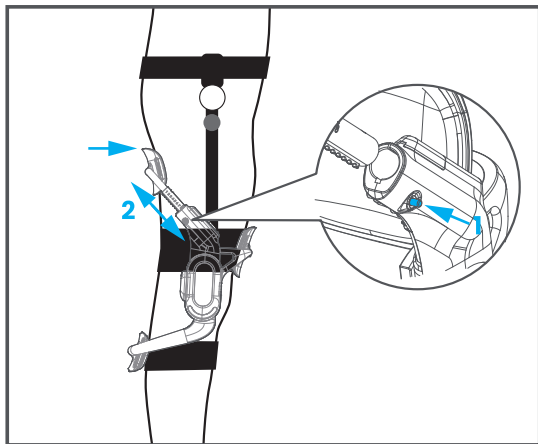
Gently rest the calf plate against the back of your calf.

Fasten the strap for a snug fit — firmly secured to prevent slipping, but not tight enough to restrict circulation.



4- Secure Thigh Plate

Make it fit as closely as possible to the thigh to prevent any shifting. Adjust the scale so that the top edge of the plate aligns with the bottom of your buttocks (gluteal fold).



ATTENTION:

The maximum scale is 7. As shown on the left, **do not** extend beyond the limit line marked by the arrow.

5- Using the Thigh Strap (If needed)

Use the additional Thigh Strap to enhance the fit and stability of the Thigh Plate.



Thigh Strap A

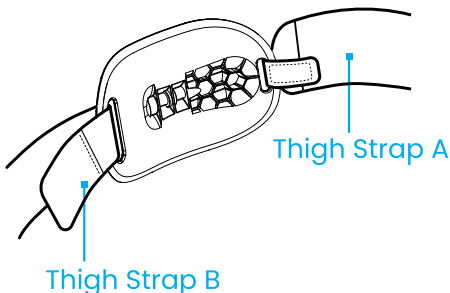


Thigh Strap B

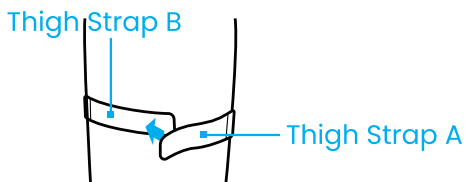
As shown in the diagram, attach Thigh Straps A and B to the Thigh Plate and secure them firmly with the Velcro.

Note:

Thigh Strap B is length-adjustable.



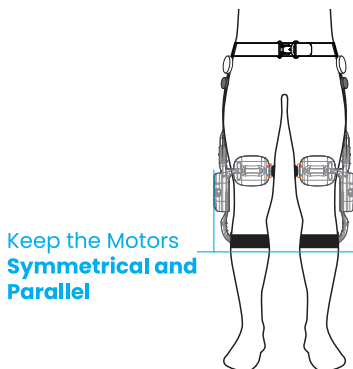
Bring Straps A and B to the front of your thigh. Secure them with the Velcro, ensuring moderate tension.



6- Wearing the Opposite Side

Repeat the same steps to wear and adjust the main unit on the other side. Ensure both units are symmetrically aligned.

(Keep the Motors Symmetrical and Parallel).

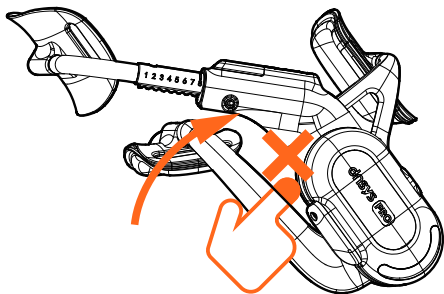


PRO TIP:

For personal use, keep the waist belt and strap lengths unchanged after the initial fitting. This allows for quick wearing next time without the need for re-adjustment.

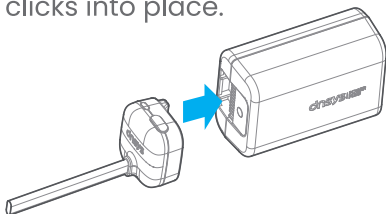
CAUTION:

When adjusting the calf rod, sitting down, or squatting, do not touch the connection between the calf rod and the main body with your hands to prevent pinching.

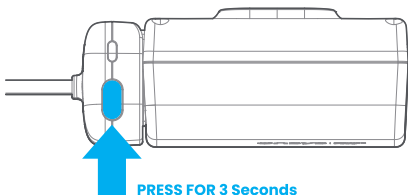


Device Activation & Connection

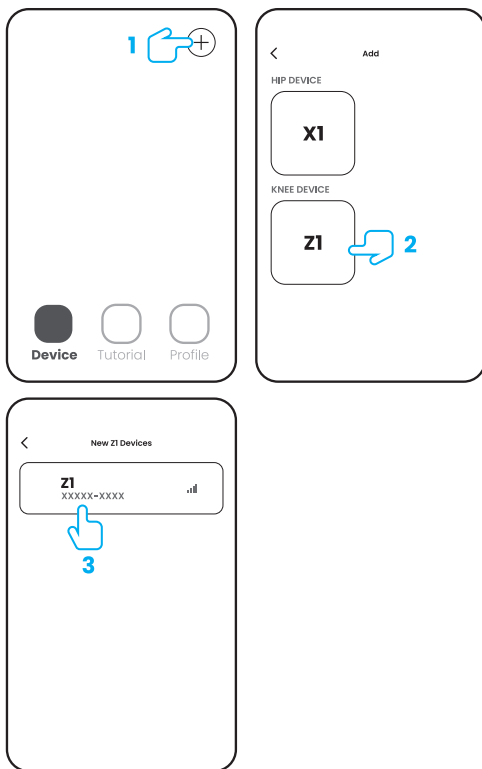
- 1 Take the Power Plus and align it with the port (note the orientation marks). Gently push the Power Plus in until it clicks into place.



- 2 Press and hold the HUB button on the HUB for 3 seconds until you hear a beep. The motor light will display a multi-colored marquee effect, indicating the device is powered on and requires activation.
(Once the device is activated, the motor light will turn solid white when powered on.)



- 3** Open the Dnsys App, tap the '+' icon in the top right corner, and select 'Dnsys Z1' from the device list.



ATTENTION:

The Blade Connector is exclusively designed for connecting the main body to the waist belt, while the Power Plus is only compatible with its dedicated port. Please confirm the port and component shape alignment before installation to avoid misconnection.

PLEASE NOTE:

1. Wear close-fitting clothing.

Avoid loose garments, as they may cause the device to shift or slip during use.

2. Ensure a snug fit without pressure.

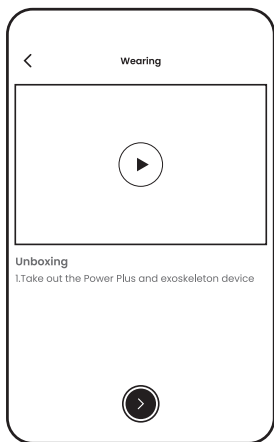
The thigh support should fit the leg closely but not compress the skin. Adjust immediately if you experience redness or numbness.

3. Sit down for the first try.

For first-time use, we recommend fitting the device while seated to prevent it from slipping or falling during adjustment.

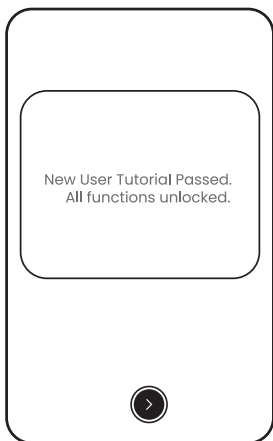
New User Tutorial (Mandatory)

- 1 Once the device is connected, the App will automatically navigate to the "New User Tutorial" page. Tap "Start Learning".



- 2 Follow the on-screen instructions to learn key features, including device operation, mode switching, and emergency stop.

- 3** Upon completion, the App will display: "New User Tutorial Passed. All functions unlocked."

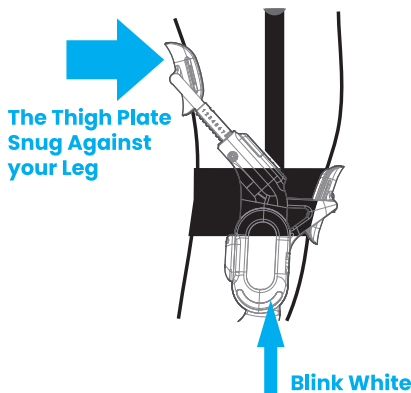
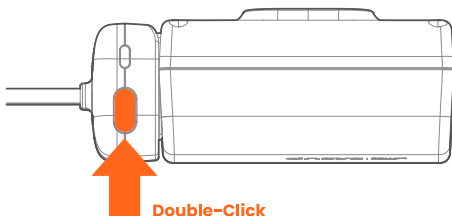


IMPORTANT: To ensure safe operation, you must complete the App tutorial before using the Dnsys Z1.

Mode Switching

1 **Activate Selection Mode**

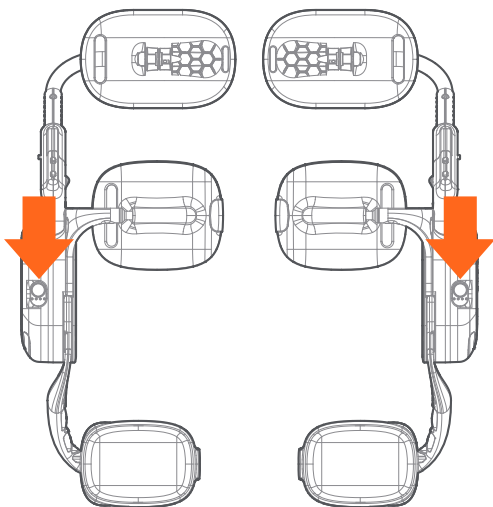
Double-click the side HUB button.
Light on Motors turns blinking white.
Ensure thigh plate is snug against skin.



2 Select Mode (Choose one method)

- On Device:

Use the "+" or "-" buttons on the Main Units to cycle through modes.



- Via App:
Go to the "Device Control" page
in the App and select your
desired mode.



3 Mode Overview

Eco Mode

The light is a soft green, breathing light, providing low assist.

Sport Mode

The light is a soft blue, breathing light, providing medium assist.

Boost Mode

The light is a bright blue, breathing light, providing high assist.

Boost+ Mode

The light is orange, indicating maximum assist.

**NOTE:**

Scan to watch mode scenarios and performance demos.

Battery & Charging

- 1** Upon receiving the device, ensure it is fully charged before first use.
- 2** The Z1 is equipped with energy recovery technology, which automatically recharges the battery during descent.

Safety Statement

1 Not a Medical Device

This device is an assistive tool and is not a substitute for medical equipment. Users with bone or joint conditions, or physical disabilities, should consult a medical professional before use.

2 No Unauthorized Disassembly

Do not disassemble or modify core components (motor, Power Plus, control module). Doing so voids the warranty and may pose safety risks.

3 Liability Disclaimer

Dnsys assumes liability only for defects in materials and workmanship. Dnsys is not responsible for any accidental damage, misuse, or improper operation.

4 Child Safety

Keep the device and accessories out of reach of children to prevent accidental injury or misuse.

5 Pinch Hazard Warning

The calf rod is located below the motor. When sitting down, squatting, or pressing the device downward, the gap between the calf rod and the main body may pinch hands. Keep your hands away from the calf rod area during operation, and do not insert fingers into the gap to avoid injury.

6 Misconnection Hazard Warning

Do not connect the Blade Connector to the Power Plus under any circumstances. Incorrect insertion may cause short circuits, device damage, or fire risks. Always align the Power Plus with its dedicated port as instructed in the "Device Activation & Connection" chapter.

Contact Us

Customer Support Email:

support@dnsys.ai

Official Website:

<https://dnsys.ai/>

(Check for firmware updates,
FAQs, etc.)

NOTE:

The contents of this manual are subject to change due to product firmware updates. Please refer to the App for the latest operational guidelines.

The illustrations in this manual are for reference only and may differ from the actual product. Please refer to the actual product.

Dnsys reserves the right to update or modify product specifications and this manual without prior notice.

dnssys