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VIATRIX Range Extended Powered Exoskeleton

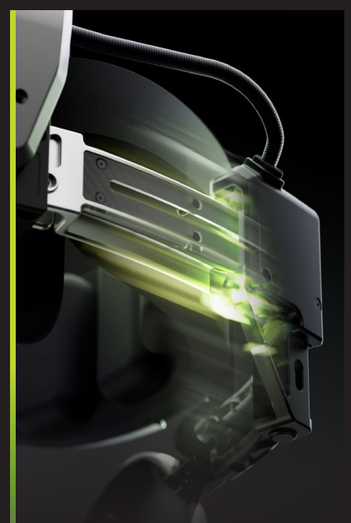
Powered by ULS ROBOTICS

With years of in-depth research in exoskeleton development, ULS Robotics, leveraging our cumulative R&D expertise and practical application experience, presents to you "VIATRIX", our first[1] consumer-grade exoskeleton.

Derived from Latin, "VIATRIX" means "traveler". Whether for daily walks or athletic challenges, VIATRIX empowers you with strong electric assistance and precise control, helping you conserve energy, enhance performance, and allowing you to break through your limits, so as to discover new horizons throughout your movement journey.

Focusing on a wide range of everyday usage scenarios, ULS Robotics has engineered a variety of innovative architectures for VIATRIX, delivering groundbreaking advancements in flexibility, intelligence, and battery endurance.

Multiple Innovations: Giving Rise to a New Exoskeleton Paradigm



FLOAT 360:
Floating Hip Joint Mechanism

Breakthrough Flexibility

The industry-pioneering floating hip joint mechanism, coupled with the leg motor design, enables smooth execution of wide-range movements such as splits and deep squats.

Proprietary Automotive-Grade Servo Motor

Millisecond-Level Precise Response

Automotive-grade motor chips ensure exceptional stability, while the integrated servo motor and gear system precisely deliver formidable power with high efficiency.

Large-capacity Battery Ensures Reliable Support

25km Long-Range Endurance

Each battery supports up to 25 km of operation. The quick-release and replacement design effectively eliminates concerns regarding range anxiety and charging inconvenience.

Hiking & Trekking

AI-adaptive mode provides assistance during uphill climbs, while impedance mode offers cushioning on descents.

Cycling

VIATRIX autonomously learns the pedaling cadence and amplitude to deliver tailored dynamic assistance.

Walking & Running

VIATRIX supports running at speeds of up to 16 km/h and accommodates slow-paced stair climbing.

Fitness Training

VIATRIX provides reverse torque for resistance training, with leg straps offering both compression and protection.

Providing Robust Assistance for Diverse Daily Activities

50%	30~40%	25km	AI
Enhancement in Leg Strength	Reduction in Energy Expenditure[3]	Extended Range[6]	Intelligent Gait Recognition

Specifications

Weight[4]	3.0 kg (Excluding Battery & Soft Pack)
Size	400*400*270 mm (Folded)
Max. Torque	46 N·m (Two Legs)
Opreation Modes[5]	AI-Adapative Mode (Supports Hiking, Walking, Running, Cycling) , Resistance Mode (Supports Downhill, Fitness Training)
Power Supply	Replacable Lithuium Battery
Opreating Temperature	-20°C ~ 65°C
Battery Range[6]	Up to 25 km per Battery

[1] "First" refers to the inaugural consumer-grade powered exoskeleton developed by ULS Robotics.
[2] "Industry - pioneering" implies that as of the product launch on July 26, 2025, no publicly available consumer-grade exoskeleton robot products had adopted similar principles or mechanisms.
[3] Determined through oxygen consumption comparison experiments; the relevant data is sourced from the test results of ULS Robotics' laboratory.
[4] The weight of the device may vary depending on configurations and accessories. Please refer to the latest official announcements from ULS Robotics and the actual product received.
[5] The activity scenarios listed in this product manual reflect those supported as of the product launch on July 26, 2025. Please refer to the latest official announcements from ULS Robotics.
[6] The battery endurance in kilometers represents the maximum distance achieved with a single battery operating at 50% power and walking speed of 6 km/h; test data provided by ULS Robotics' laboratory.

Images are for illustrative purposes only and may differ from the actual product.
AI-generated contents are included in some images.

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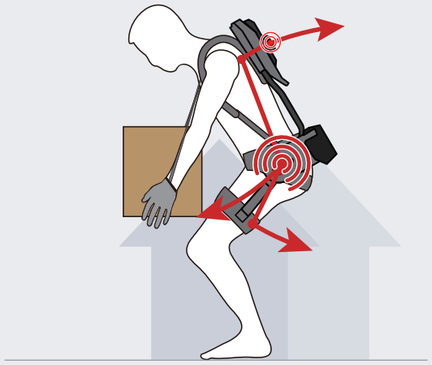
FIT-HV PRO

WAIST Exoskeleton Robot

The FIT (Flex Interaction Tech) series of active electric exoskeleton robots integrates advanced intelligent digital actuators, reduction systems, and adaptive intelligent motion control systems, which are independently developed by ULS Robotics. Combined with software mechanical impedance and hardware-adjustable structures, it provides personalized solutions for users with various needs. Among them, the FIT-HV PRO active electric waist exoskeleton robot uses high-strength industrial materials and features a newly added hip joint adjustment mechanism. It includes three types of assistance modes and response speed adjustments, primarily used for heavy lifting, large-range, high-frequency bending, and short-distance transportation. It aims to reduce workers' workload and can reduce physical load by more than 60%, protect operators during the production process, and improve work efficiency.

Easy to Wear and Use

Simply wear the exoskeleton device like putting on a backpack, then turn on the controller. During use, it will provide you with efficient lifting assistance and walking support.



Dual modes can be freely switched for use.

ASSIST	BALANCE
Provides three levels of lifting assistance with varying force, offering a maximum support force of 30kg to help reduce fatigue caused by heavy physical labor, enhance physical endurance, and improve work efficiency.	Provides three levels of lifting assistance with varying force, offering a maximum support force of 30kg to help reduce fatigue caused by heavy physical labor, enhance physical endurance, and improve work efficiency.

- Servo Power Unit
- Mechanical Sensor Expansion Interface
- High-Endurance Battery
- Interactive Hand Controller
- Intelligent Motion Control
- Dual Feedback Sensors

APPLICATION INDUSTRIES

Airport Ground Services / Power and Mining / Physical Lifting / Automobile Manufacturing

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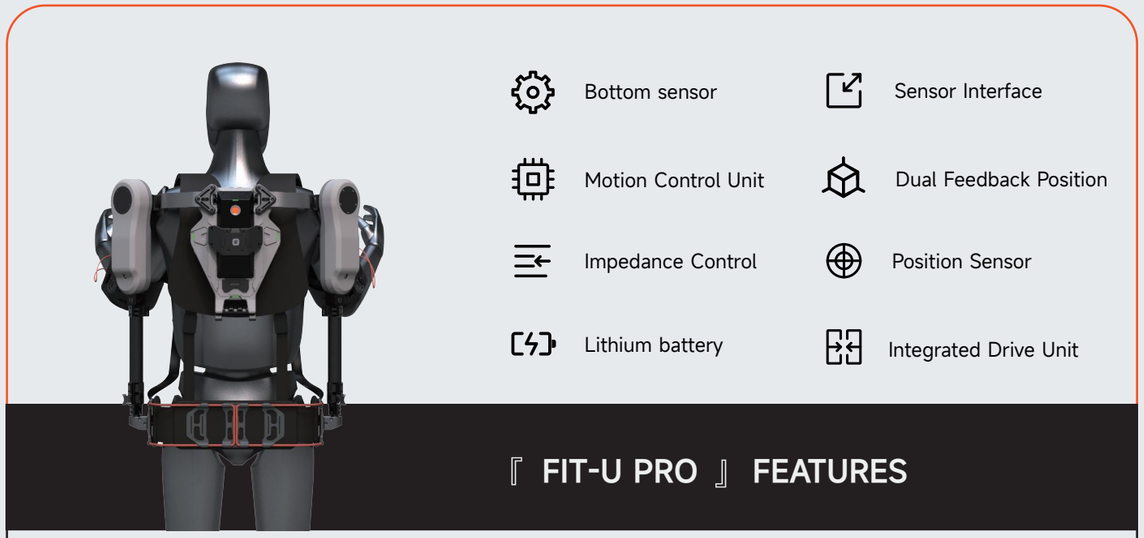
SPECIFICATIONS

Device Dimensions	872mm× (500mm-560mm) ×320mm (L × W × H)
Device Weight	5.6kg
Power Source	Electrically Assisted Drive
Comprehensive Assistance	15~30kg
Ambient Temperature	-20°C~50°C
Working Time	3~8 h
Battery	36V Lithium Battery
Degrees of Freedom	4
Materials	Nylon Engineering Plastic, Aviation Aluminum Alloy, Carbon Fiber

FIT-U PRO

UPPER LIMB Exoskeleton Robot

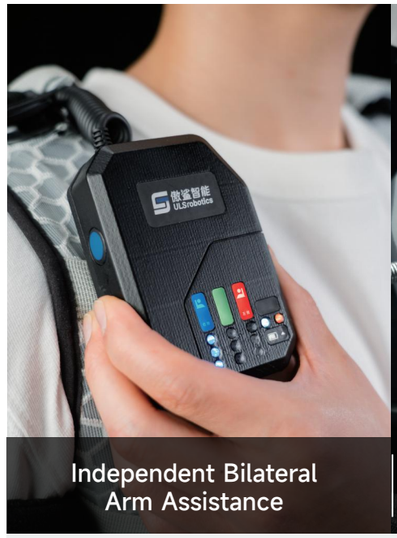
The FIT-U PRO Upper Limb Exoskeleton Robot consists of an upper limb control system, a shoulder control system, and an integrated control system, providing intelligent electrical assistance for the user's shoulders, arms, and waist. The product features a self-developed motion control card and matching drive units. It provides strong support for enterprises in heavy physical labor positions by reducing the labor burden of workers by more than 50%, reducing worker turnover, and improving production efficiency. The exoskeleton's gradually established data collection and learning capabilities will provide valuable suggestions for enterprise management personnel on employee efficiency and health data analysis in the future.



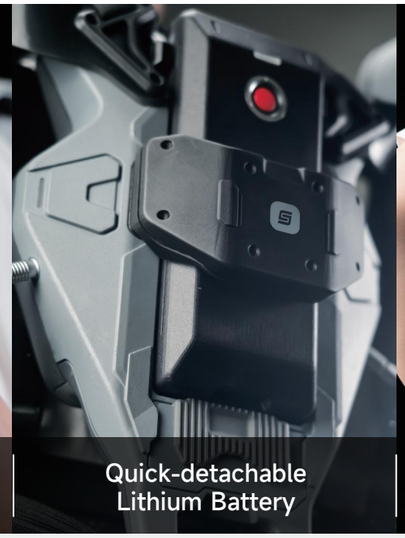
- Bottom sensor
- Sensor Interface
- Motion Control Unit
- Dual Feedback Position
- Impedance Control
- Position Sensor
- Lithium battery
- Integrated Drive Unit

『 FIT-U PRO 』 FEATURES

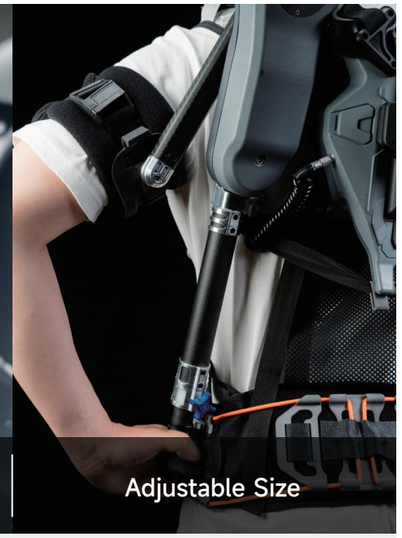
- Reduce Work Intensity
- Enhance Work Efficiency
- Reduce Occupational Injuries
- Low Cost, High Efficiency



Independent Bilateral Arm Assistance



Quick-detachable Lithium Battery



Adjustable Size

APPLICATION INDUSTRIES

Airport Ground Services / Power and Mining / Physical Lifting / Automobile Manufacturing

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SPECIFICATIONS

Device Dimensions	(600mm-680mm)×572mm×220mm(L × W × H)
Device Weight	3.9kg
Power Source	Electrically Assisted Drive
Bilateral Assistance	10~20kg
Ambient Temperature	- 20°C~50°C
Working Time	3~8h
Battery	36V Lithium Battery
Degrees of Freedom	8
Materials	Nylon Engineering Plastic, Aviation Aluminum Alloy, Carbon Fiber

PES-U

Passive Elastic System Upper Limb

The PES-U (Passive Elastic System-UpLimb) is a mechanical energy-storing exoskeleton developed and designed by ULS Robotics. Specifically engineered to deliver mechanical support to users' shoulders and arms, it this upper limb energy-storing exoskeleton is primarily intended for physical labor roles in enterprises. It aims to ease the labor burden on workers engaged in lifting tasks, effectively reducing their load by over 30% while providing robust support to boost production efficiency.

1. No need to charge

There are no restrictions on the use location and operating time.

2. Safe Assistance

The mechanical energy storage drive design provides smooth and gentle assistance, with a maximum assistance force of 10 kg.

3. Posture Diversity

The device has a wide range of movement, including not only up and down, but also left and right tilting, and moves smoothly in other directions.

4. Lightweight Device

The product is lightweight and made of solid material, weighing only 1.9kg.

5. Easy to Wear

It is comfortable to wear, simple to use, and easily put on within a minute.

6. Waterproof and Dustproof

It can be used outdoors or in humid weather conditions. The soft bag and other attachments are detachable and can be cleaned.

APPLICATION INDUSTRIES

Airport Ground Services / Power and Mining / Physical Lifting / Automobile Manufacturing

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SPECIFICATIONS

Device Dimensions	610-690×520×175(mm) (L × W × H)
Suitable Weight Range	40~100kg
Product Weight	1.9kg
Power Source	Mechanical Power
Comprehensive Assistance	10kg (MAX)
Service Life	>2 million cycles
Degrees of Freedom	8
Materials	Nylon Engineering Plastic, Aviation Aluminum Alloy, Carbon Fiber

*(The service life data is mainly based on the service life cycles of materials under normal consumption conditions and at room temperature, and is for reference only.)

PES-B

Passive Elastic Suit-Back

The Passive Elastic Suit-Back (PES-B) of ULS Robotics, with its original S-shaped mechanical architecture, can generate a powerful reactive force effect in real time. Whether it is long-term heavy-load work or frequent bending and stretching actions, the Passive Elastic Suit-Back can precisely disperse the pressure on the waist, effectively relieve muscle fatigue, provide a stable support for you during high-intensity work, significantly reduce the risk of waist strain, and make every operation easy, efficient, safe and worry-free.

1. No need to charge

There are no restrictions on the use location and operating time.

2. Safe Assistance

Mechanical energy storage drive offers smooth, gentle auxiliary force for waist comfort.

3. Posture Diversity

The device has a wide range of movement, including not only up and down, but also left and right tilting, and moves smoothly in other directions.

4. Lightweight Device

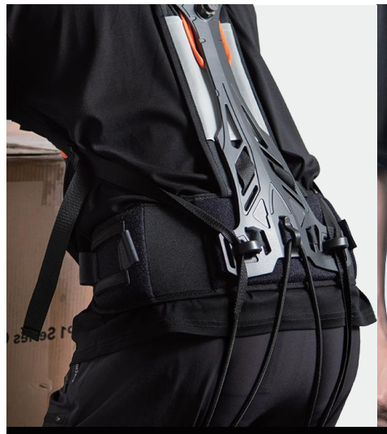
The product is lightweight and made of solid material, weighing only 0.8kg.

5. Easy to Wear

It is comfortable to wear, simple to use, and easily put on within a minute.

6. Waterproof and Dustproof

It can be used outdoors or in humid weather conditions. The soft bag and other attachments are detachable and can be cleaned.



Lumbar Support Function

Force on the pull rope

Posture Guidance Function

APPLICATION INDUSTRIES

Airport Ground Services / Power and Mining / Physical Lifting / Automobile Manufacturing

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SPECIFICATIONS

Device Dimensions	550×240×50(mm) (L × W × H)
Suitable Weight Range	45~100kg
Product Weight	0.8kg
Power Source	Mechanical Power
Materials	PP High-strength aluminum alloy Carbon Fiber