MANUAL AND USER GUIDE

For simulators in the C and D-series with 43” monitors

TENSTAR simulation

tenstarsimulation.com

BEFORE USE

Scope

This manual applies to the C-Series Tenstar Simulator model MU (Mobile Unit) and the D-Series model MUMB (Mobile Unit with Motion Base). These simulators share basic system architecture. Where there are model-specific differences they are described in a clear and easily understandable way.

Contact

Please ensure you have your serial number available when contacting support. (See 2.3 / 2.4)

Address

Storemyrsvägen 2
45731 Tanumshede
Sweden

Support

support@tenstarsimulation.com
+46 101 41 44 98

Support USA

support@tenstarsimulation.com
+1 855 203 8903

Disclaimer

Please read and understand the contents of this manual carefully. Failure to read the manual may lead to personal injury, and/or damage to the simulator and its peripherals.

This manual describes the instructions on how to set up, operate and dismantle the simulator. Always ensure that anyone who uses this product is familiar with the content of this manual.

Intended Use

Tenstar simulators are training tools designed for indoor settings like classrooms or offices to train students and professional operators without teacher supervision. The simulator is meant for one user at a time, who operates it seated.

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1. SAFETY AND COMPLIANCE

1.1 Safety Messages

The following warning symbols are used in this document and on the simulator:

Automatic startup

This product can move while no operator is seated. This symbol is placed on the rear seat beam.

Electricity hazard

This simulator uses mains power, which is hazardous when touched. This symbol is placed on the rear seat beam.

Moving Mechanical Parts

This product contains moving components. Never reach inside the simulator while it is powered on. This symbol is placed on the rear seat beam.

1.2 Required Skill Level

The following definitions are used in this manual:

Skilled person: Someone with technical knowledge and experience to recognize hazards and avoid them.

Instructed person: Someone who has received instruction or training by Tenstar personnel to perform specific tasks safely.

An ordinary person is defined as a person not performing technical service or updates and is only using the simulator as an operator.

1.3 General Safety Information

Product Explanation

(1) Tenstar simulators shall only be used by persons who have carefully read and understood the user manual and the safety provisions in it.

(2) Tenstar simulators are intended for student and professional use and can be used by ordinary, instructed, and skilled persons. The user manual describes operations that may require different levels of qualifications to ensure safety. See definitions in *1.2.*

(3) Unless stated otherwise in the respective (maintenance) instructions, maintenance activities shall only be carried out by skilled or instructed persons. Where stated, specific activities can also be carried out by ordinary persons.

(4) This product is not intended for use by children. When using this product, children should be under constant supervision of an adult who is responsible for their safety. Maintenance actions shall only be performed by an adult, following the provided instructions.

(5) Tenstar simulators are not intended for use by persons with reduced physical and/or mental capabilities, or persons with a lack of experience and knowledge, unless they are supervised or have been given instructions concerning the use of the product by a person responsible for their safety.

General safety notices

(1) Tenstar simulators should only be operated in classrooms or office areas with flat, horizontal floor. If placed on uneven, inclined, or unstable surfaces, the simulator may become unstable and tip over. **(2)** Always lock the caster wheels of the simulator except when the simulator is moved between locations. **(3)** Make sure there is enough space around the simulator to prevent the simulator from damaging itself, its surroundings or hurt people when the motion base is active. Demarcate a safety distance of 80 cm around the simulator. **(4)** There is a risk of injury if the simulator is transported or handled incorrectly. Always unplug the product before performing maintenance or service. Maintenance or service requiring the removal of covers from the simulator is only allowed to be done by skilled and experienced personnel and only after consulting Tenstar Support.

1.4 Regulatory Information

The product is CE-marked and complies with the following directives and regulations:

(1) Machinery Directive 2006/42/EC. **(2)** EMC Directive 2014/30/EU. **(3)** Radio Electric Directive 2014/53/EU. **(4)** RoHS Directive 2011/65/EU. **(5)** WEEE Directive 2012/19/EU. **(6)** The Wifi/radio module of the machine is FCC approved under ID RAS-MT7925B22M.

1.5 Hazards

Electrical safety

The Tenstar simulators are powered by mains voltage, which is hazardous when touched. The power supply and electronics are located at the bottom inside the simulator. Only skilled and instructed persons are allowed to remove the cover and floor of the simulator. Always check local regulations before any service requiring the removal of the cover or floor.

A mains socket with a protective earth/ground terminal must be used. Make sure that the building installation has dedicated means of over-current and short-circuit protection. Use a circuit breaker with a current rating not exceeding 10A (for 220-240 VAC circuits) or 20A (for 100-120 VAC circuits).

Electrical Hazard.

Only use power cables which have been approved by Tenstar. Do not damage, cut, or repair the cable. A damaged cable should be immediately replaced with a new original one. Contact Tenstar Support for advice.

Mechanical safety

Moving Mechanical Parts.

Keep the bellows clear of body parts, tools, and other objects to prevent damage to both the bellows and the contacting item. Do not place a foot or any weight inside the bellows or step onto the simulator using the bellows.

Do not grab, hold, or insert fingers or objects into the steering wheel in a way where letting go immediately is not always possible. Keep hair, jewellery, clothing and other entangling items clear from the steering wheel. When adjusting the steering wheel, the seat, or armrests, always keep fingers clear from pinching points.

Changing control units

When changing the steering wheel of the simulator the power to the simulator must be turned off. After switching off the simulator on the power button, at least two minutes must pass before attempting to disconnect the steering wheel. Changing other control units such as joysticks, pedal sets and headphones does not require the power to be turned off. The new control units will be automatically recognized by the software after restart of the exercise.

2. INTRODUCTION TO THE SIMULATOR PARTS

2.1 Specifications - MU

Technical data

Dimensions of portrait mode (HxWxL):
1747x1472x1927mm

Dimensions of landscape mode (HxWxL):
1541x2073x1927mm

Net Weight:
190kg

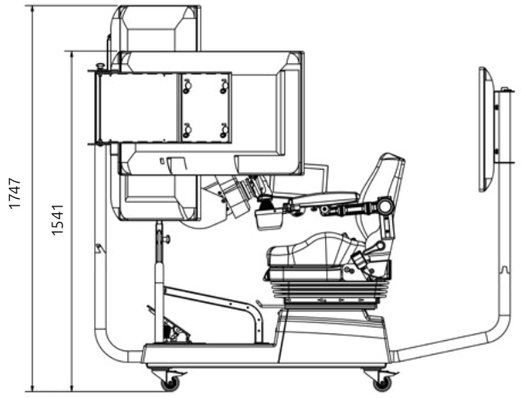
Operating weight limit

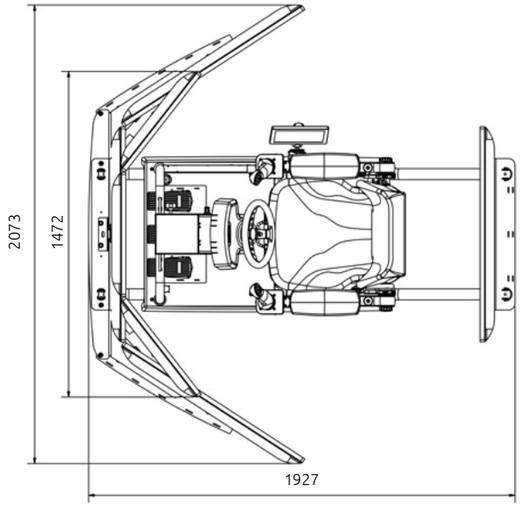
Maximum load capacity during operation is 150kg.

Electrical

(1) Power consumption 850W. **(2)** Power is supplied via the included power cord connected to the mains power supply. The mains power should be rated at:

10A @ 230 VAC / 15A @ 110 VAC.





2.2 Specifications - MUMB

Technical data

Dimensions of portrait mode (HxWxL):
1970x1472x1928mm

Dimensions of landscape mode (HxWxL):
1763x2073x1928mm

Net Weight:
215kg

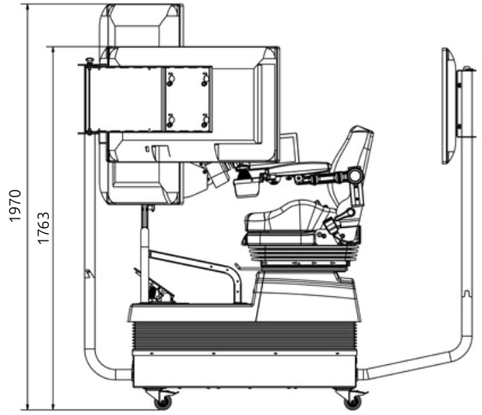
Operating weight limit

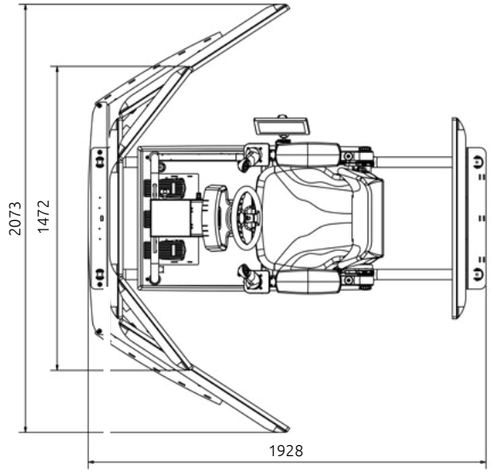
Maximum load capacity during operation is 150kg.

Electrical

(1) Power consumption 1150W. **(2)** Power is supplied via the included power cord connected to the mains power supply. The mains power should be rated at:

10A @ 230 VAC / 15A @ 110 VAC.





2.3 Main Components - MU

(1) Adjustable Steering Wheel

(2) Quick-Switch Joysticks

(3) Removable pedals

(4) Front monitors

(5) Touch screen

(6) Rear monitor

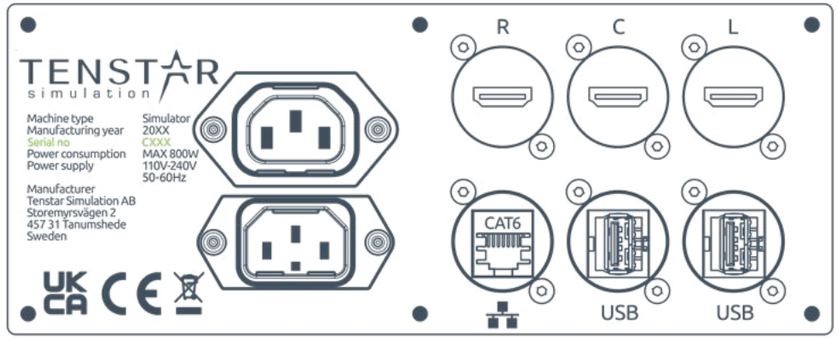
(7) Power Button and **Serial Number**

(8) Front Connector Panel-Machine Plate and **Serial Number**

(9) Lockable casters

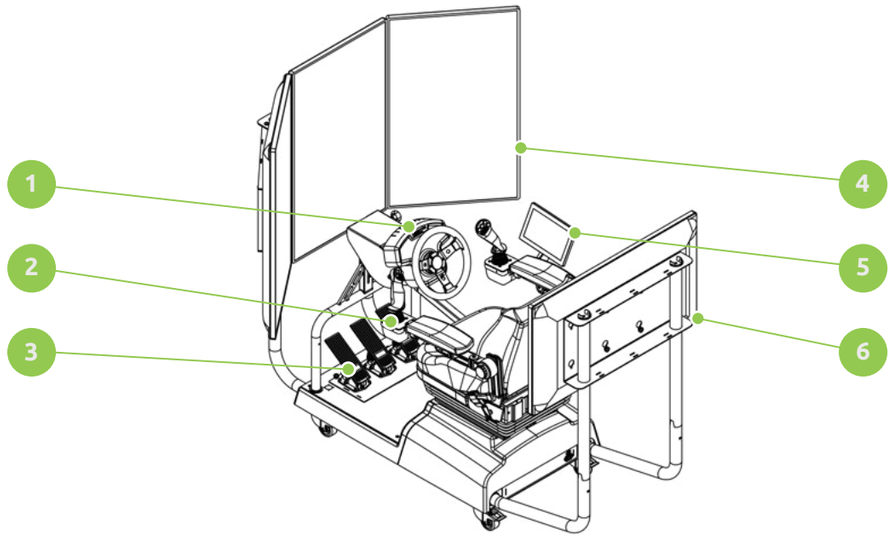
(10) Armrests

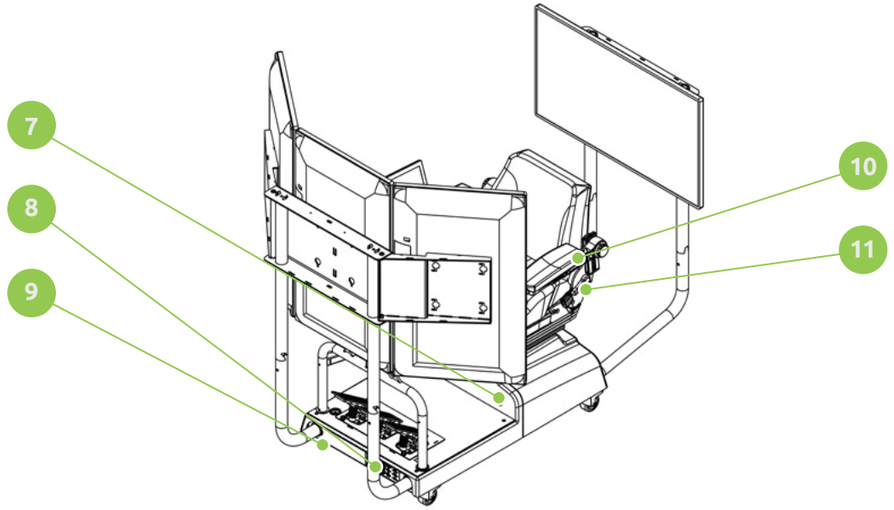
(11) Adjustable seat



Front Connector Panel

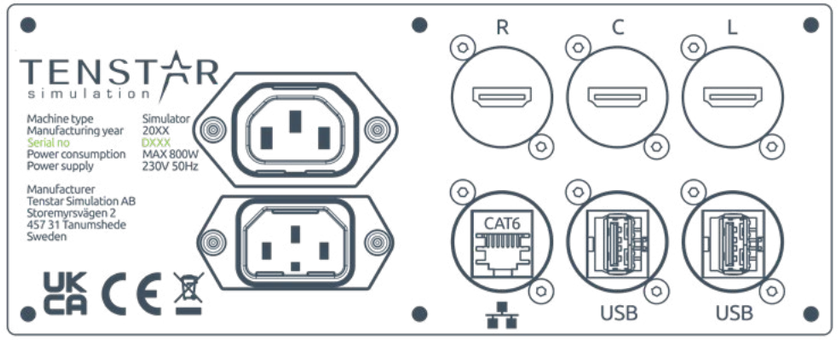
Please ensure you have your **serial number** available when contacting support.





2.4 Main Components - MUMB

(1) Adjustable Steering Wheel
(2) Quick-Switch Joysticks
(3) Removable pedals
(4) Front monitors
(5) Touch screen
(6) Rear monitor
(7) Power Button and **Serial Number**
(8) Front Connector Panel-Machine Plate and **Serial Number**
(9) Lockable casters
(10) Armrests
(11) Adjustable seat
(12) Bellow



Front Connector Panel

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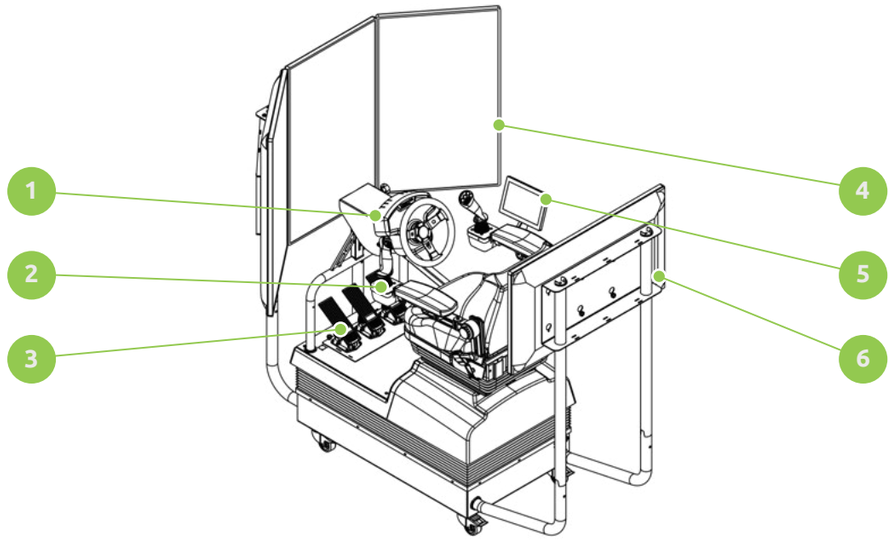
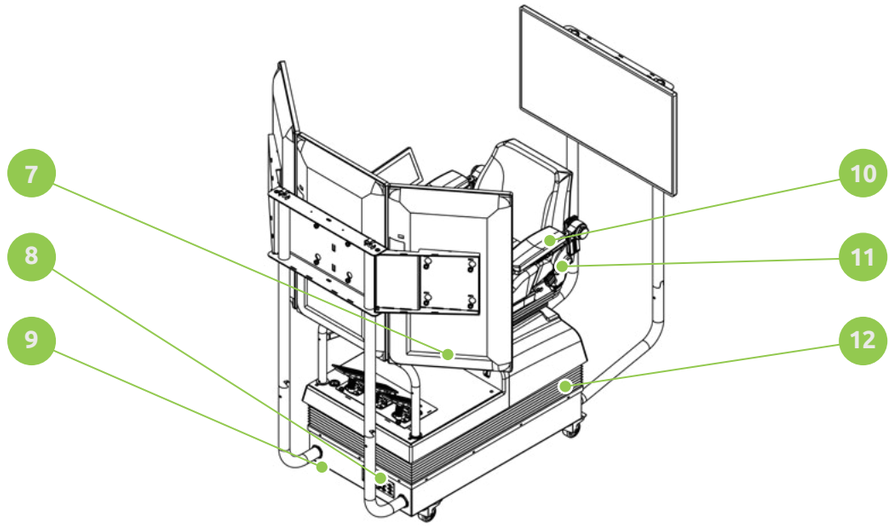




3. UNPACKING & ASSEMBLY

3.1 Location

Unpacking and assembly should be done on an even, smooth, flat surface. Make sure there is enough space around the simulator to ensure a safe and secure working environment.

3.2 Unpacking

EU Pallet

(1) Remove plastic wrap. **(2)** Cut and remove the packaging straps. **(3)** Remove the top lid. **(4)** Remove tubing. **(5)** Remove pallet collars. **(6)** Lift the simulator off the pallet, never roll it off as the sudden impact can damage the internal components!

Transport Box

(1) Place the transportation box so you have enough space to open the door of the box and roll out the simulator. **(2)** Make sure to lock the caster wheels on the transport box. **(3)** Open door locks, be careful of the door falling. **(4)** Open door, it hinges in the bottom of the transport box. **(5)** Remove three bent tubes on the right. **(6)** Unlock the two caster wheels on the simulator. **(7)** Roll out the simulator. **(8)** Remove the remaining tubes and the front (and, if present, rear) monitor mount.

3.3 Assembly

(1) Assembly is recommended to be done by two people.

(2) Ensure that assembly is done in **an area with plenty of space.**

(3) Ensure the caster wheels are locked when assembling the simulator. Some parts are heavy; use caution when lifting.

(4) Scan the QR-code for complete assembly instructions.

4. TRANSPORTATION & STORAGE

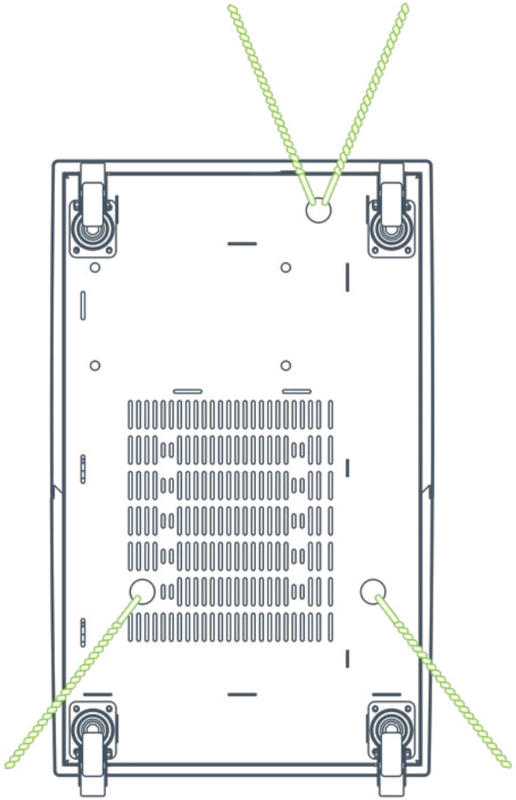
4.1 Transportation

When it is not practical for the simulator to be packaged during transportation, e.g. with a trailer, the simulator shall be secured with straps. The simulator has been prepared for the use of straps to secure it onto a trailer using holes in the base.

Underneath the simulator there are three holes which are designed to be used for the fastening of transportation straps. The straps are secured onto the trailer in accordance with the image below. Front and rear monitor and monitor stands shall be dismantled from the simulator prior to loading.

The simulator must NOT be transported with front and rear monitors and monitor-mounts assembled.

Secure using the built-in openings in the bottom chassi together with straps rated no less than 500kg in break strength.



4.2 Storage

The simulator shall be stored in a dry environment with a temperature between 15 to 35 degrees Celsius.

5. OPERATION

5.1 Initial Use

(1) Make sure the mains power is properly connected to the power inlet on the front panel of the simulator. Connect the network cable to the ethernet port on the front panel.

(2) Do not sit in the simulator when powering it up, as the motion base and steering wheel will move while calibrating.

(3) The simulator is powered on/off by pressing the power button located below the seat.

(4) Scan the QR-code for further instructions.

5.2 Tenstar User Xperience (TUX)

(1) Initial login and configuration of the system are performed exclusively by authorized personnel during commissioning. For cybersecurity reasons, login credentials and access procedures are not included in this manual. These details are provided securely and directly to the responsible party by the supplier or service technician. This approach protects against unauthorized access and aligns with secure-by-design principles as outlined in applicable EU regulations.

(2) Scan the QR-code for further instructions.

6. MAINTENANCE

6.1 Cleaning Monitors, Steering Wheel, Joysticks, Covers & Pedals

(1) Make sure to shut down the simulator and unplug the power cable. (2) Wipe the surface gently using only a cleaning cloth or a soft, lint-free cloth. **(3)** If the surface becomes dirty, soak a soft, lint-free cloth in a mild detergent solution. Wring the cloth to remove excess liquid. Wipe the surface of the display to remove dirt. Then use a dry cloth of the same type to dry. **(4)** Do not scratch or hit the surface of the panel with fingers or hard objects of any kind. **(5)** Do not use volatile substances such as alcohol-based sprays, solvents and thinners. **(6)** Oil-based cleaners may damage the plastic parts and void the warranty.

6.2 Cleaning Seat

(1) Vacuum your fabrics regularly to prevent build-up of dust and dirt on the fabric surface. **(2)** Get to spills and stains quickly. Mop up the excess liquid using kitchen roll or a damp cloth. Then clean using upholstery shampoo, detergent or handwash.

6.3 Cleaning VR-Headset

Lenses

(1) Hard objects must not touch the lenses.

(2) Use an optical lens micro-fiber cloth or use a non-alcoholic disinfectant wipe to clean the lenses.

Cushions, outer plastic surfaces.

Use disinfectant wipes (alcohol-based ingredients allowed).

7. TROUBLESHOOTING

7.1 Troubleshooting

The Simulator doesn't power up when the power button is pressed

Make sure the power cable is securely connected to both the simulator and power socket.

No image on monitor screens

No Power - Make sure the power cable is securely connected in both simulator and power socket.

No Signal - Make sure the signal cables in the front cable harness are securely connected in both the monitors and simulator.

Monitor displays are in the wrong order (requires keyboard)

(1) Exit Tenstar Client (fn+alt+F4). **(2)** Press the Windows key and type "Display settings", press enter. **(3)** Move displays to match physical setup. **(4)** Make sure the "make this my main display" box is checked on the center display. **(5)** Select resolution for all displays except touchscreen: 1920x1080 for landscape and 1080x1920 for portrait. **(6)** Enter the "Advanced display" and select the highest available refresh rate for each display. **(7)** Start *Tenstar Simulator Front-End* to start the Tenstar simulation interface.

7.2 Support Videos

Scan the QR-code below for a library of support videos explaining the assembly, calibrations, start-up, TUX controls, updating, disassembly procedures and much more.

8. DECOMMISSIONING

When the machine has reached its end of life it is to be recycled in a safe manner:

(A) Critical data is copied to a backup.

(B) The power cable is disconnected and the simulator is left for at least two minutes to ensure it is in its lowest position.

(C) The computer is removed and the hard drive is physically destroyed.

(D) The hardware is disassembled into material categories and recycled according to local standards. Care should be taken not to cause any injury to persons or other objects during disassembly. Always have at least two people performing the work.

This equipment must not be disposed of with regular household waste. It must be collected separately for proper treatment and recycling in accordance with Directive 2012/19/EU.

PREPARE FOR REALITY

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