



esense

esense FieldFit

Installation & service manual

Esense FieldFit is a product by:

Indes Healthcare BV	T +31 (0)53 4803920
Josink Esweg 1	E info@esense-moves.com
7545 PN Enschede	W esense-moves.com

1 Table of contents

1	Table of contents	2
2	esense FieldFit introduction	3
2.1	Intended use.....	3
2.2	Intended user	3
2.3	Intended use environment.....	3
2.4	System build-up.....	3
3	Compliance Checklist for Integrators	4
4	Trolley requirements	5
4.1	Trolley has two fixed casters with free space inbetween	5
4.2	Caster distance and height requirements	6
4.3	Trolley has space underneath for controller and battery	6
4.4	Trolley has space for the interface mount	7
4.5	Trolley use scenario considerations	7
4.5.1	Intensity of use and time for charging.....	7
4.5.2	Floor surface	7
4.5.3	Trolley weight while loaded/unloaded.....	7
5	FieldFit installation	8
5.1	Installing the FieldFit drive module.....	8
5.2	Configuring the FieldFit interface module.....	13
5.2.1	Straight handles interface module	13
5.2.2	Bullhorn handles interface module	14
5.3	Installing the FieldFit interface module.....	15
5.3.1	Clamping the interface around a tube.....	15
5.3.2	Mounting the interface against a vertical surface.....	16
5.4	Routing and connecting the cables	17
6	End tests	19
6.1	End tests after installation	19
6.2	Example test report.....	19
7	Maintenance	20
8	PowerTalk service software.....	21
9	Revision list.....	22

2 esense FieldFit introduction

2.1 Intended use

Esense FieldFit is a universal electric drive support system for a wide range of carts and trolleys. It delivers power-assisted driving, enabling users to handle the trolley as before, but without the physical effort.

Esense FieldFit is suitable for trolleys used in fields such as:

- Materials handling
- Order picking
- On-site technical support
- Meal distribution services
- Laundry services
- Facility cleaning

2.2 Intended user

Esense FieldFit is intended for any user who pushes carts or trolleys.

2.3 Intended use environment

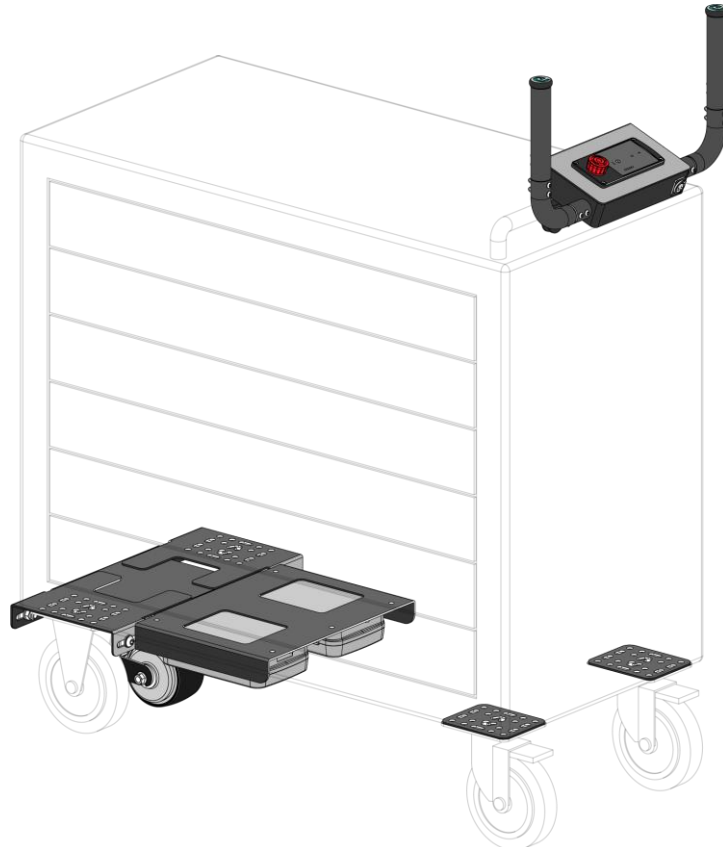
Esense FieldFit is intended to for use in indoor environments with hard, dry and clean industrial surfaces, including:

- Home healthcare environment
- Professional healthcare environment
- Industrial environment

2.4 System build-up

Esense FieldFit consists of two main modules that need to be mounted onto the trolley:

- A combined drive and controller module to be installed underneath the trolley.
- An interface module to be installed at the position where the trolley is pushed.



Esense FieldFit consists of a drive module and an interface module

3 Compliance Checklist for Integrators

Esense is intended as an add-on for existing trolleys. Esense FieldFit is CE certified as a machine, specifically 'interchangeable equipment' according to the Machine directive, confirmed via a Declaration of Conformity. To maintain CE compliance for both the esense FieldFit drive system and the trolley, the integrator must ensure the following:

1. General Requirements

- The trolley itself has a valid CE marking according to the relevant directives (e.g., Machine Directive, Medical Device Regulation, if applicable).
- Esense FieldFit is integrated strictly within its intended use as described in the installation manual.
- No structural or functional modifications are made to the esense FieldFit system and the trolley.

2. Mechanical Integration

- The mechanical mounting of the drive system does not compromise the stability, load capacity, or mechanical safety of the trolley.
- The integration does not require welding, drilling, or alterations to the drive system beyond the approved mounting interfaces.

3. Electrical and EMC Compliance

- In the case that the trolley already includes electronic components, verify that the trolley on its own complies to EMC directive requirements.
- Only the approved esense FieldFit battery, cables and connectors are used without any modifications.

4. Safety & Risk Management

- Safety features (e.g., emergency stop, speed limits, braking functions) in either of the products, are not bypassed or compromised.
- Load limits, specified in both the trolley and esense FieldFit documentation, are respected.
- When trolleys are used to carry heavy loads and used on sloped surfaces, a parking brake is required on the trolley.
- Labels, instructions and warnings on both products remain visible, accessible, and applicable.

5. Documentation & Instructions

- The user manual of both the trolley and the esense FieldFit are provided to the end-user, or the user manual of the trolley has been updated with instructions on safe use of the esense system.
- The Declaration of Conformity (DoC) for both the trolley and the esense FieldFit system are kept available.

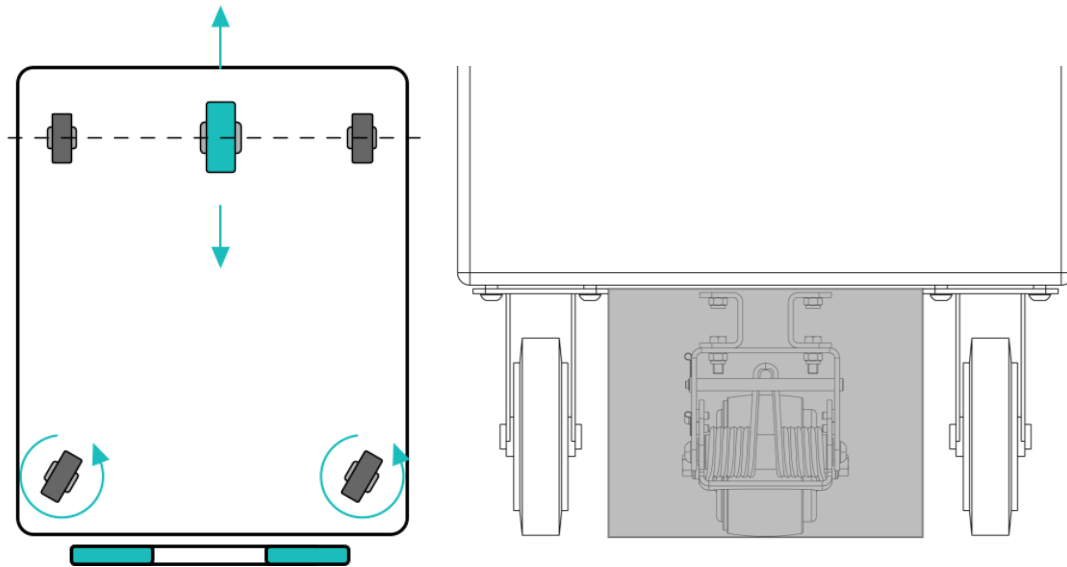
By following this checklist, integrators can ensure that the combination of esense FieldFit with the trolley does not invalidate the CE conformity of either product. This allows continued reliance on the individual CE markings, without the need for a new conformity assessment or re-certification of the combined product.

4 Trolley requirements

To be able to install esense FieldFit, the trolley needs to comply with a number of requirements. These are listed below.

4.1 Trolley has two fixed casters with free space inbetween

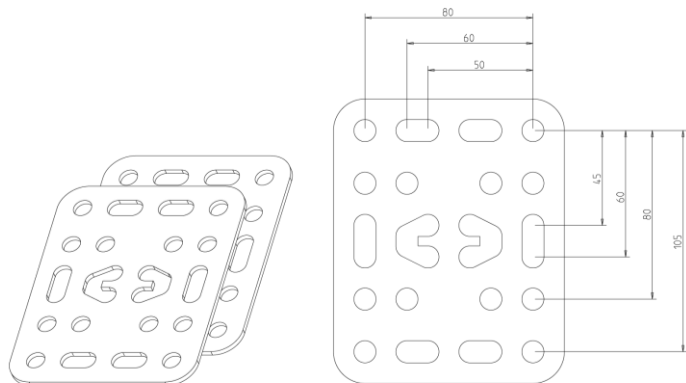
The trolley must have two fixed casters. These are typically positioned at the front of the trolley and complimented by two swivel casters at the back. The fieldfit Drive mount is designed to be installed by using the existing mounting holes for the fixed casters, effectively placing the Driveunit between- and in-line with the fixed casters. There should therefore be no obstacles present between the two fixed casters because this space will be claimed by the Driveunit.



The trolley needs to have two fixed casters, the grey area needs to be available for the Driveunit.

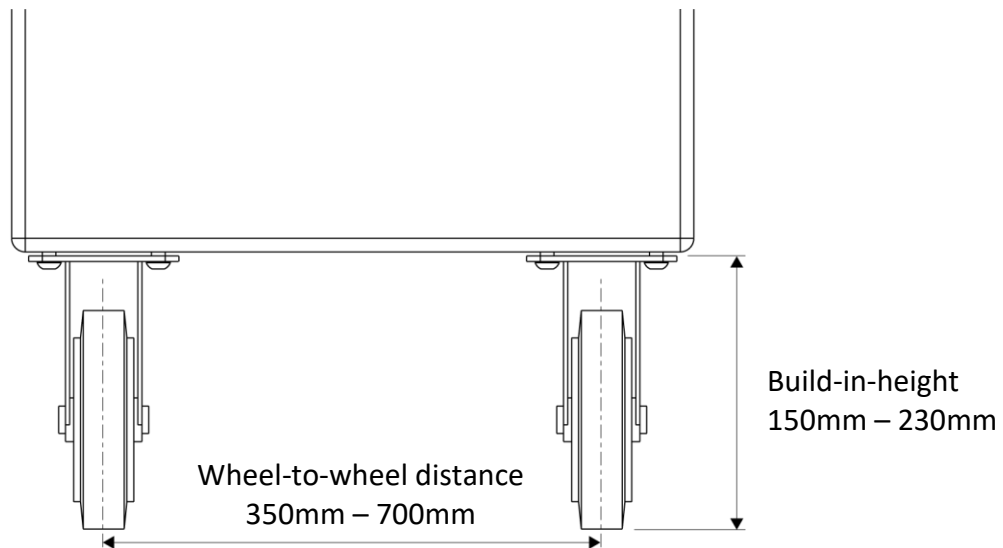
Attention!

The casters must be attached to the trolley with plate mounting. Esense FieldFit makes use of the square bolt pattern for mounting the driveunit. Casters with stem mounting are not suitable for esense FieldFit.



4.2 Caster distance and height requirements

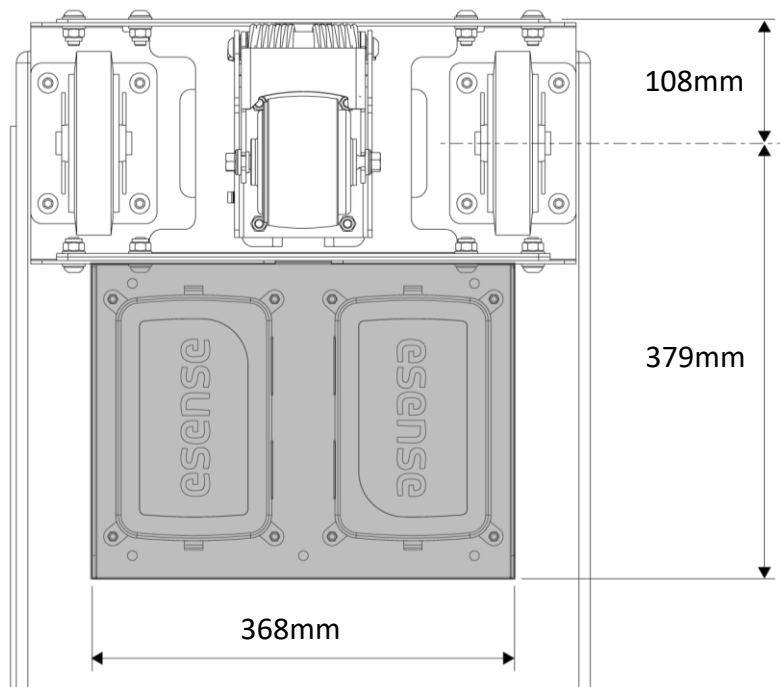
The fixed casters to which the drive mount is attached, must have a wheel-to-wheel distance of minimum 350 mm and maximum 700 mm. The height of the casters should be between 150 mm and 230mm.



Allowed wheel-to-wheel distance and build-in height.

4.3 Trolley has space underneath for controller and battery

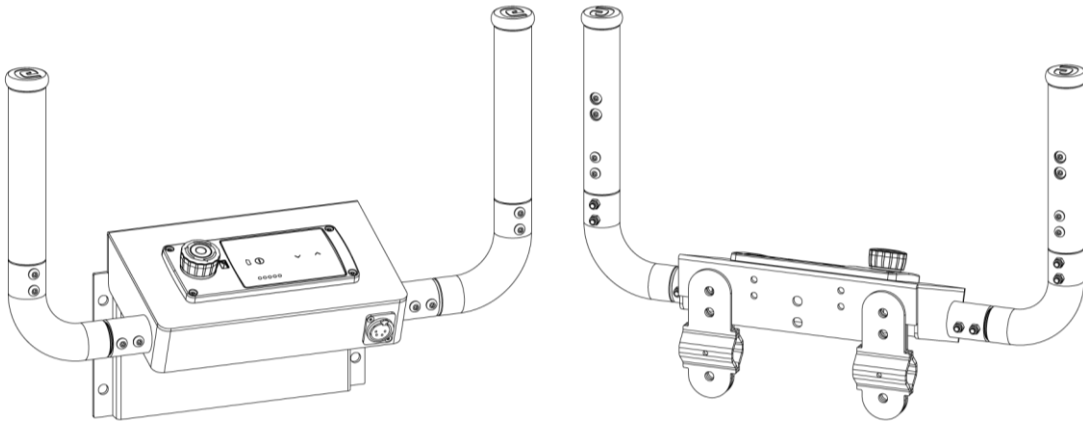
The trolley must have space underneath for the controller and battery to be placed near the Driveunit. If less space is available, the boxes can also be placed without the mounting plate. For the individual box mounting pattern, see chapter 4.



The trolley needs space for the controller and battery underneath. They can either be placed as one unit by using the mounting plate (which has connections to the drive mount) or be placed separately.

4.4 Trolley has space for the interface mount

The interface mount must be placed at the position where the operator is pushing the trolley. It can either be clamped around the existing pushbar or it can be bolted or screwed onto any vertical surface that is available at the preferred height. For the installation dimensions, see chapter 4.



The trolley needs space for the interface mount. There are two mounting options available.

4.5 Trolley use scenario considerations

In addition to the physical demands to the trolley, there are a number of things to consider about the way it is used. Consider the following points to judge how well esense will enhance the trolley's lifetime.

4.5.1 Intensity of use and time for charging

The system can do approximately 6 kilometers of driving before the battery needs to be charged. Charging takes around 2 hours.

4.5.2 Floor surface

Esense is intended for indoor use only on clean surfaces. Very rough and uneven surfaces like those found outdoors or in heavily used industrial areas will cause the tyre to wear prematurely and will result in frequent and unintended maintenance cycles.

4.5.3 Trolley weight while loaded/unloaded

The esense Driveunit uses a spring to push the motorized wheel to the ground. If a trolley is very light while unloaded, this may cause the trolley to be pushed upwards by the spring force, causing instability. This might not cause a problem, but it is advisable to consider the impact this may have on usability and safety.

The trolley instability may be experienced with trolleys weighting less than 50 kg. Esense FieldFit is suitable for trolleys weighting up to 380 kg when driving on a 6 degree slope. On flat surfaces, the maximum weight is 500 kg.

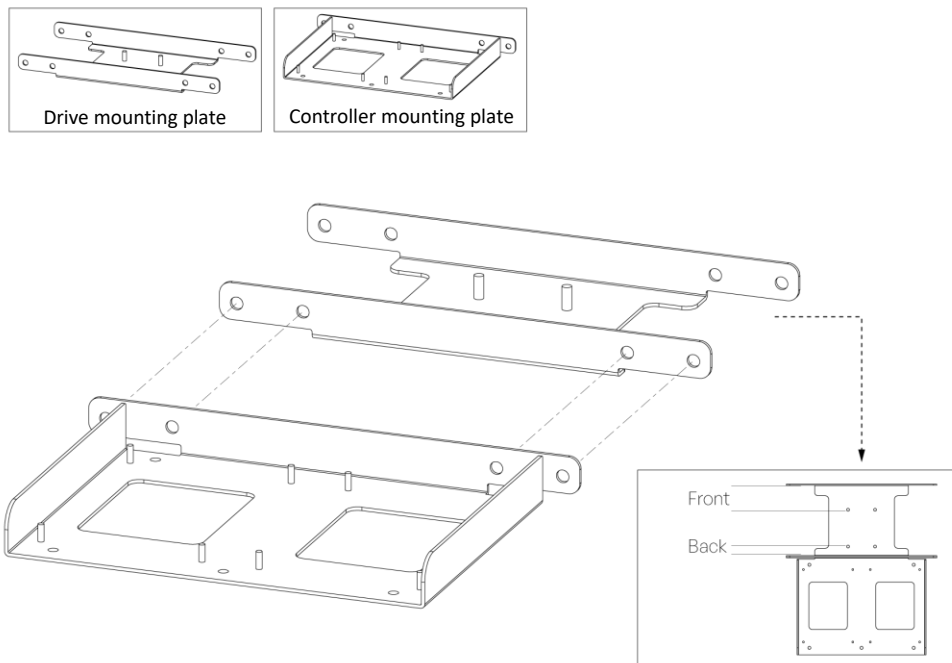
Attention!

Trolleys used for carrying heavy loads and driving on sloped surfaces must include a mechanical parking brake.

5 FieldFit installation

Below are the steps required to install esense FieldFit to a trolley. Make sure to follow the steps in the correct order. A product end test is provided at the end to ensure proper installation before the trolley is released for use.

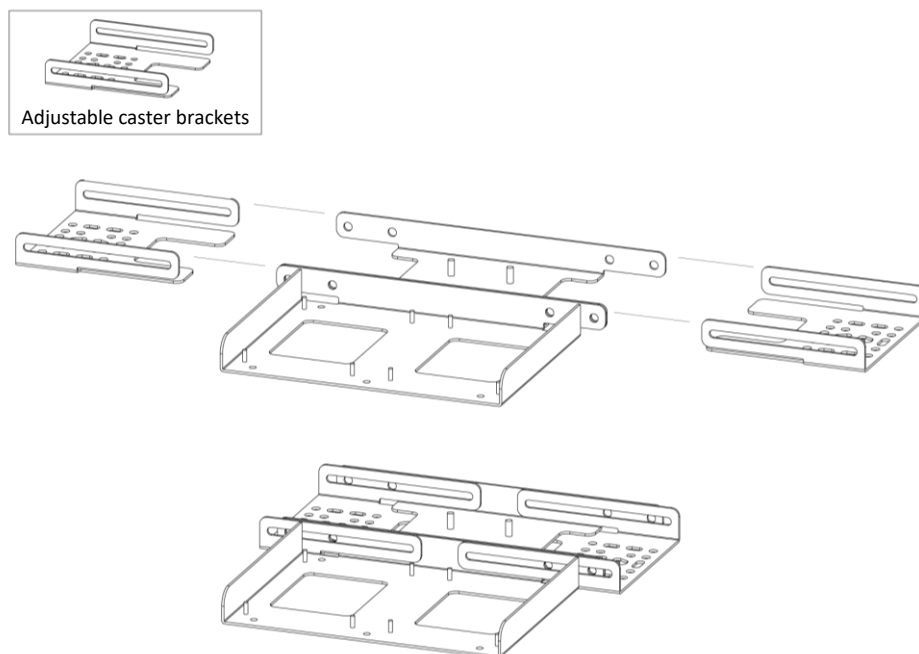
5.1 Installing the FieldFit drive module



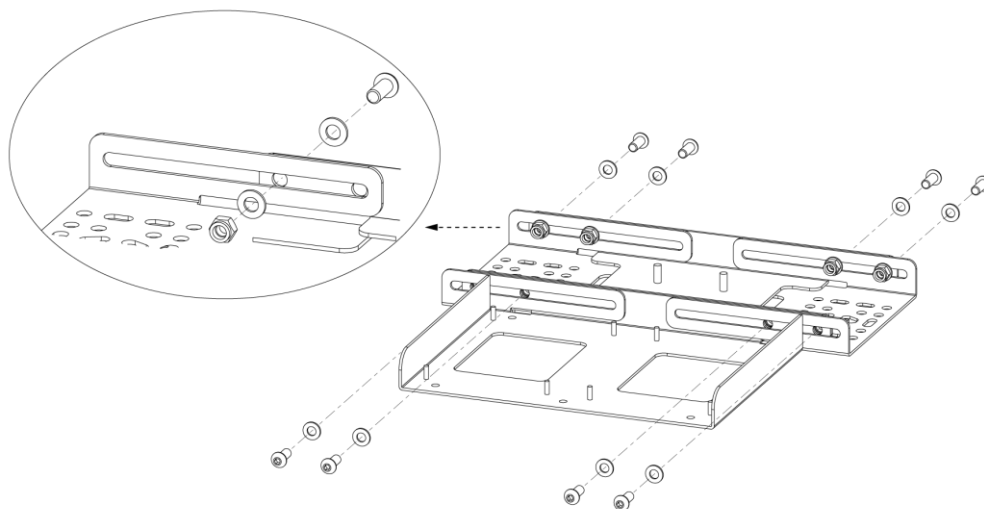
Combine the drive mounting plate and the controller mounting plate.

Notice!

Installing the controller mounting plate is optional. Controller and battery can be mounted separately using their own mounting brackets.



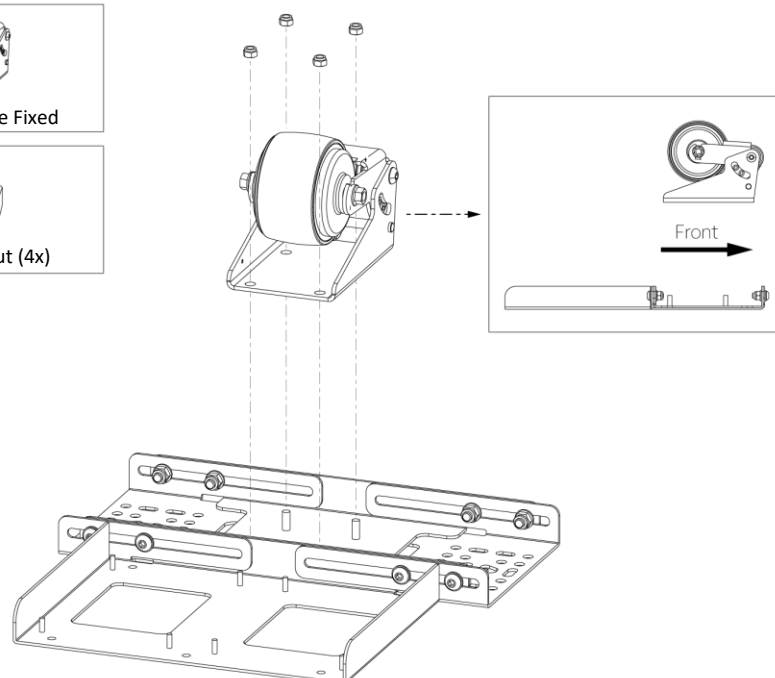
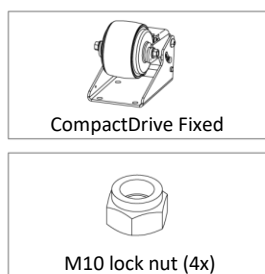
Slide in the Adjustable caster brackets



Bolt the parts together using M10 bolts, washers and lock nuts.

Attention!

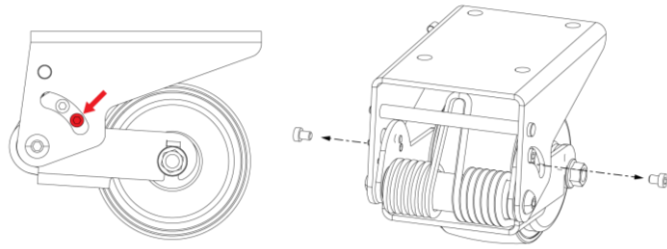
Do not tighten the nuts yet, this will be done later when the wheel is positioned on the trolley.



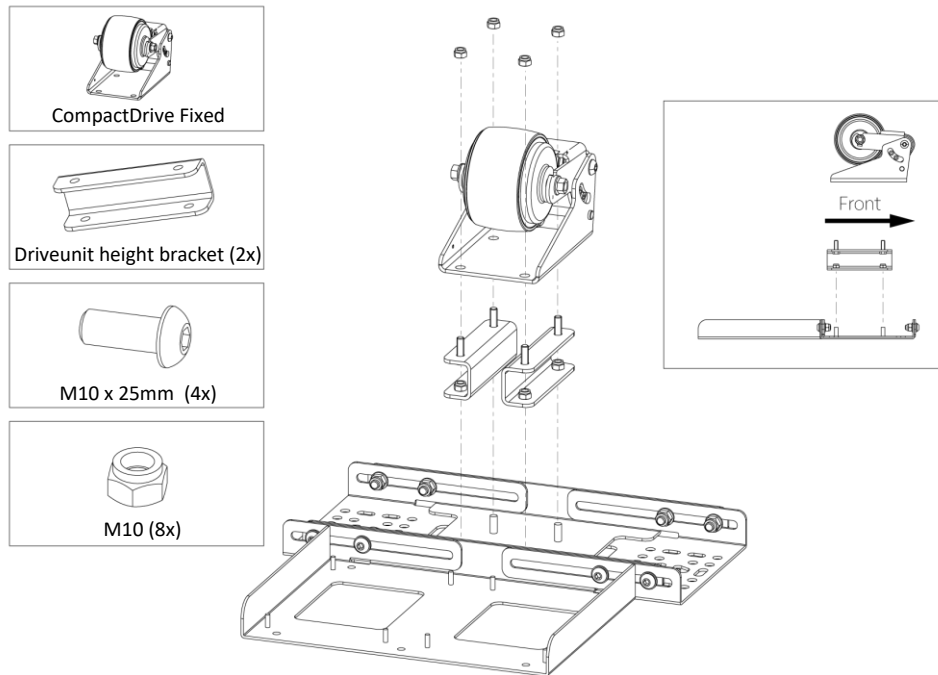
If the build-in height (from floor to top of caster) is 150-190mm, mount the Driveunit directly onto the drive mounting plate.

Attention!

When the build-in height is between 165 and 190mm, the travel adjustment bolts in the Driveunit need to be removed to ensure the wheel travels downward enough to touch the floor.



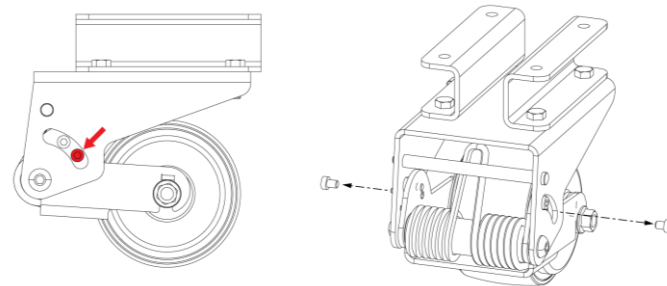
4b

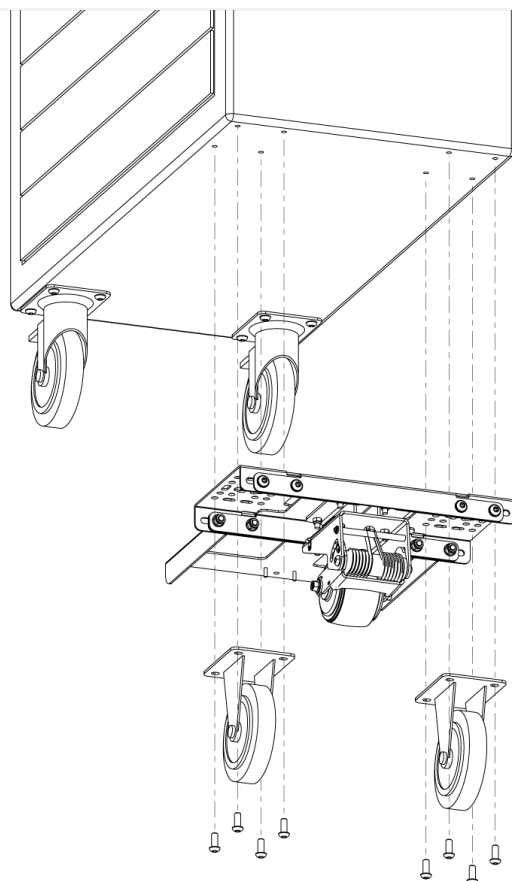


If the build-in height (from floor to top of caster) is 190-230mm, mount the Driveunit together with the Driveunit height brackets.

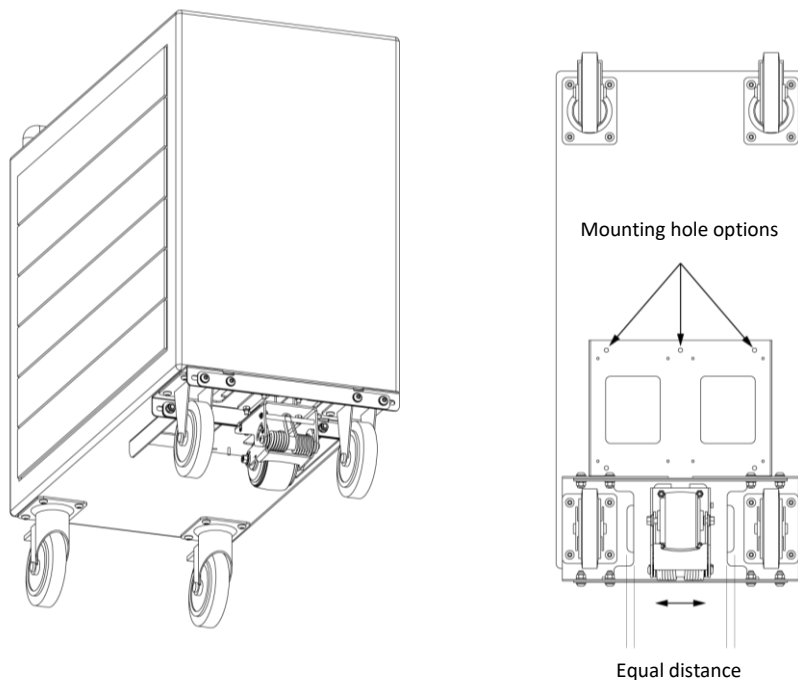
Attention!

When the build-in height is between 205 and 230mm, the travel adjustment bolts in the Driveunit need to be removed to ensure the wheel travels downward enough to touch the floor.

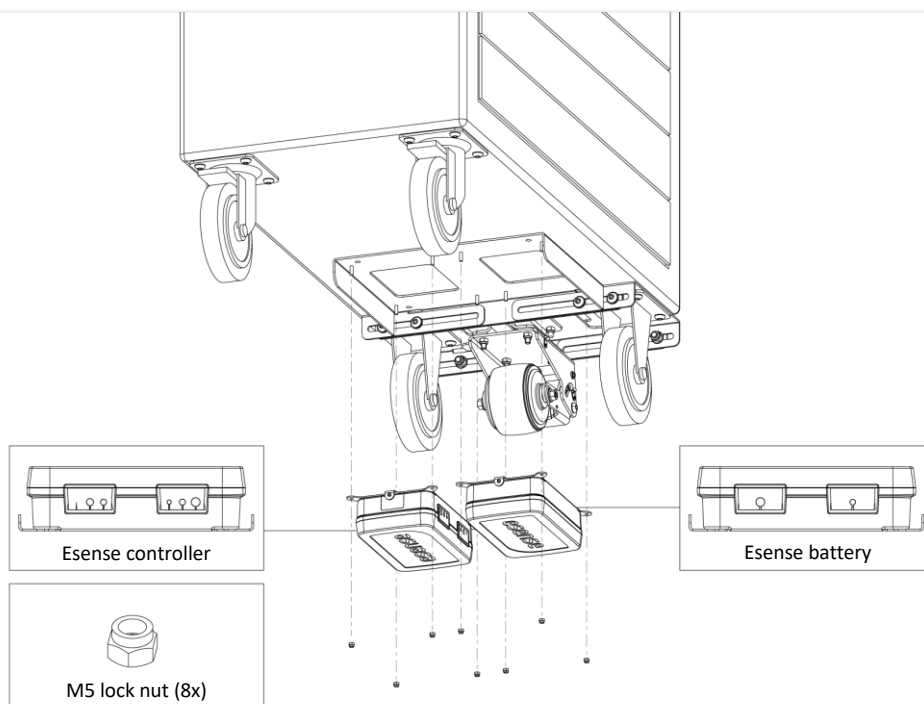




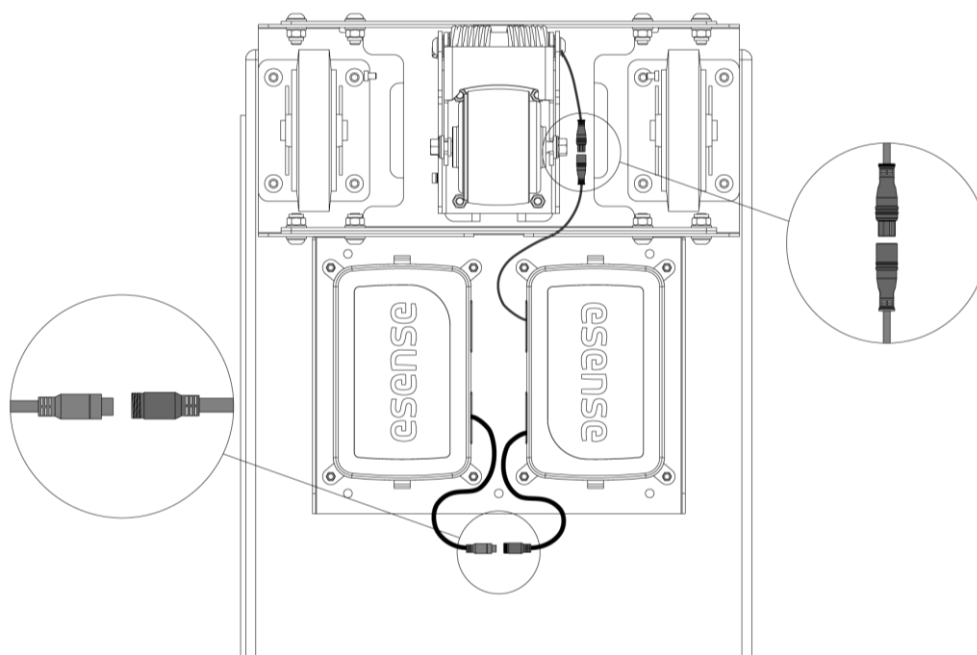
Remove the (front) casters, place the Drive module between the casters and the trolley and reattach the casters.



1. Make sure that the drivewheel is positioned in the middle between the wheel brackets and tighten the M10 bolts until it is fixed into place (8x).
2. Attach the back end of the controller mounting plate to the trolley using the available mounting hole options with for example pre drilled holes, self tapping screws or doublesided adhesive tape (not included).



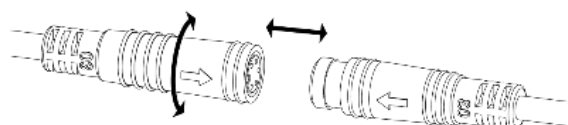
Attach the controller and battery using the M5 lock nuts provided.

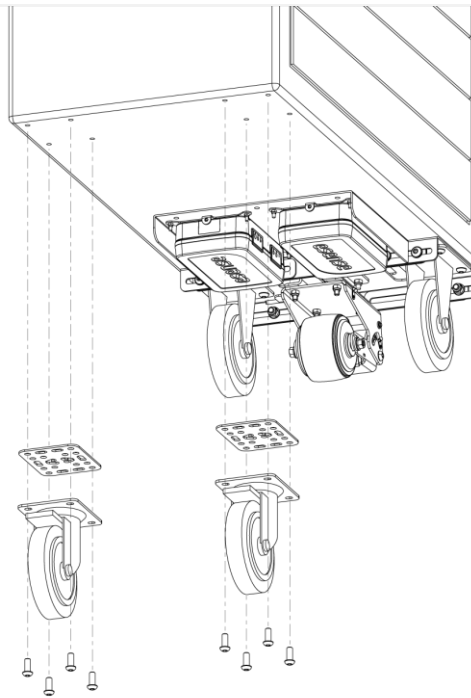


1. Connect the Drive cable from the controller and the Drivewheel to each other.
2. Connect the power cables from the battery and controller to each other.
3. Use zip ties to anchor cables to the mounting plate

Attention!

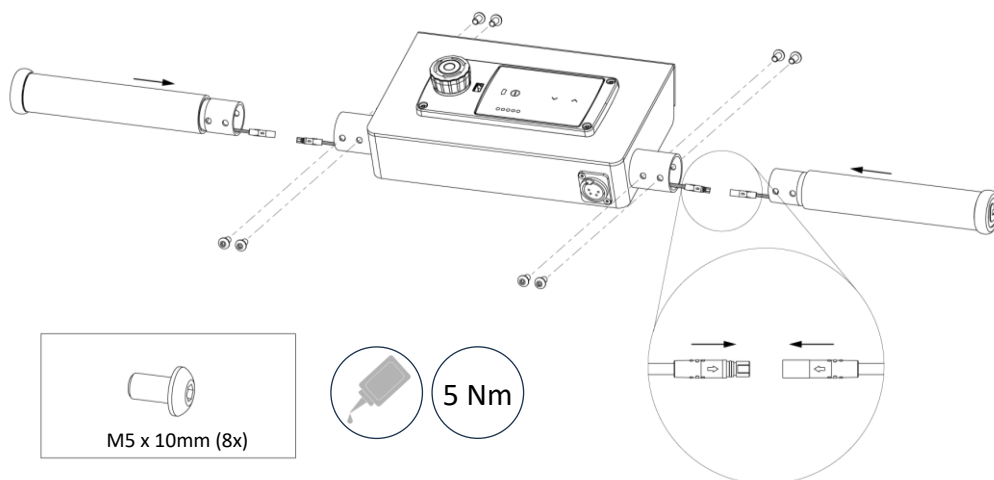
Connectors have arrow markings indicating mating positions. Connect the cables by matching the arrow markings and pushing them together. Be careful while finding the proper fit. Rough handling may cause permanent damage to the pins of some connectors.





5.2 Configuring the FieldFit interface module

1



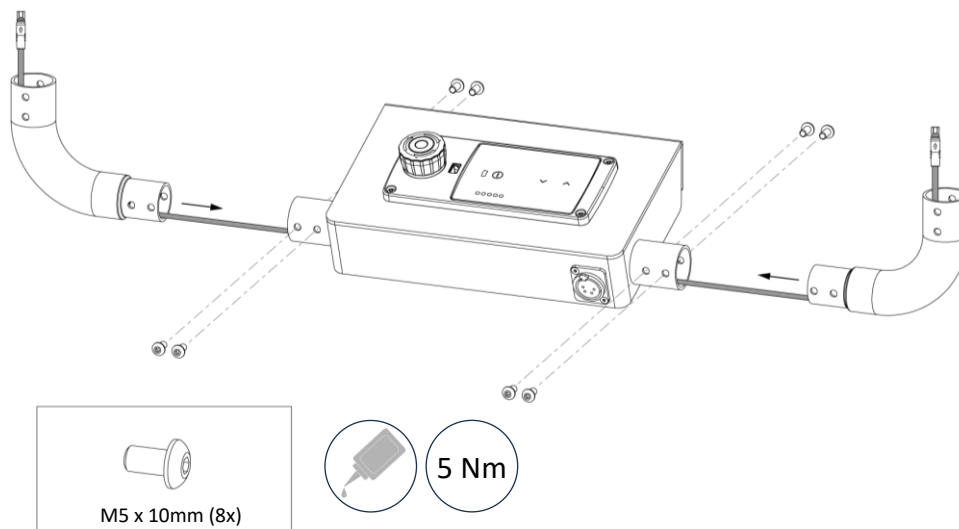
Attention!

The Force sensor connector does not have arrow markings indicating mating positions. This connector guides proper connection using a notch. A proper connections is made by slowly rotating and pushing the connector until the connector can be pushed inward. Due to the stiffness of its seal, the connector must be firmly pressed into its final position.



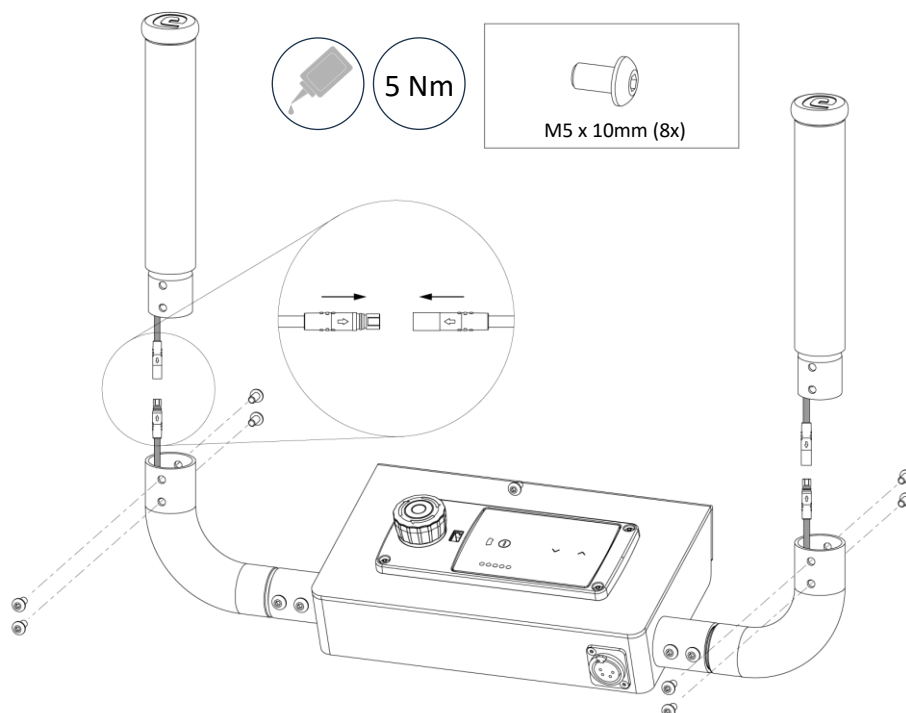
5.2.2 Bullhorn handles interface module

1b



For the bullhorn interface model, lead the sensor cables through the 90 degree bends and mount the bends into the interface housing. Apply threadlocker on the bolts to prevent loosening over time. Tighten the bolts with 5 Nm.

2b



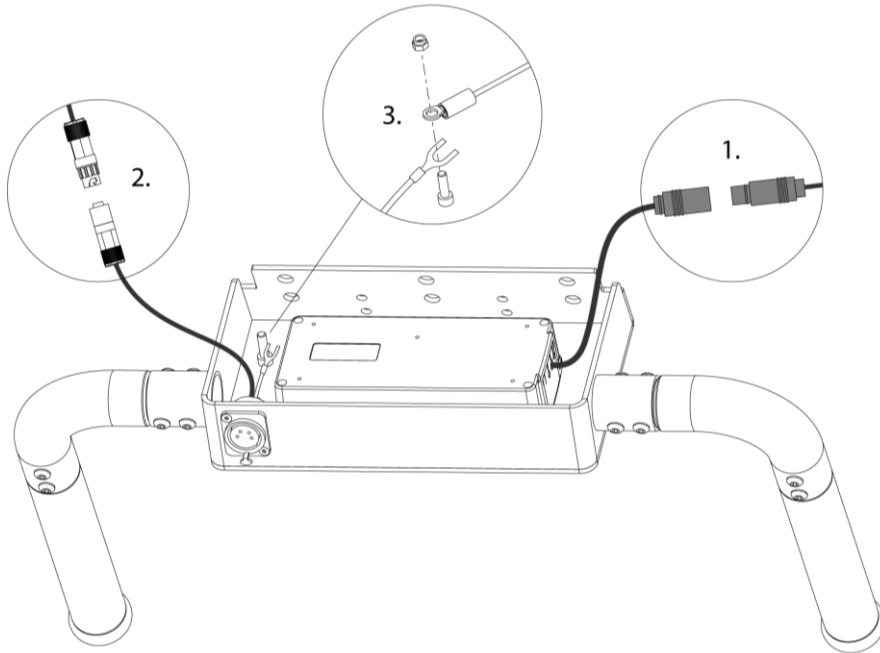
Continue by connecting the sensor cables and mount the handles into the 90 degree bend. Apply threadlocker on the bolts to prevent loosening over time. Tighten the bolts with 5 Nm.

Attention!

Sensor cables are fragile. Do not install them under tension or in positions where the movement of the trolley can cause damage for example by scraping against a sharp edge.

5.3 Installing the FieldFit interface module

1



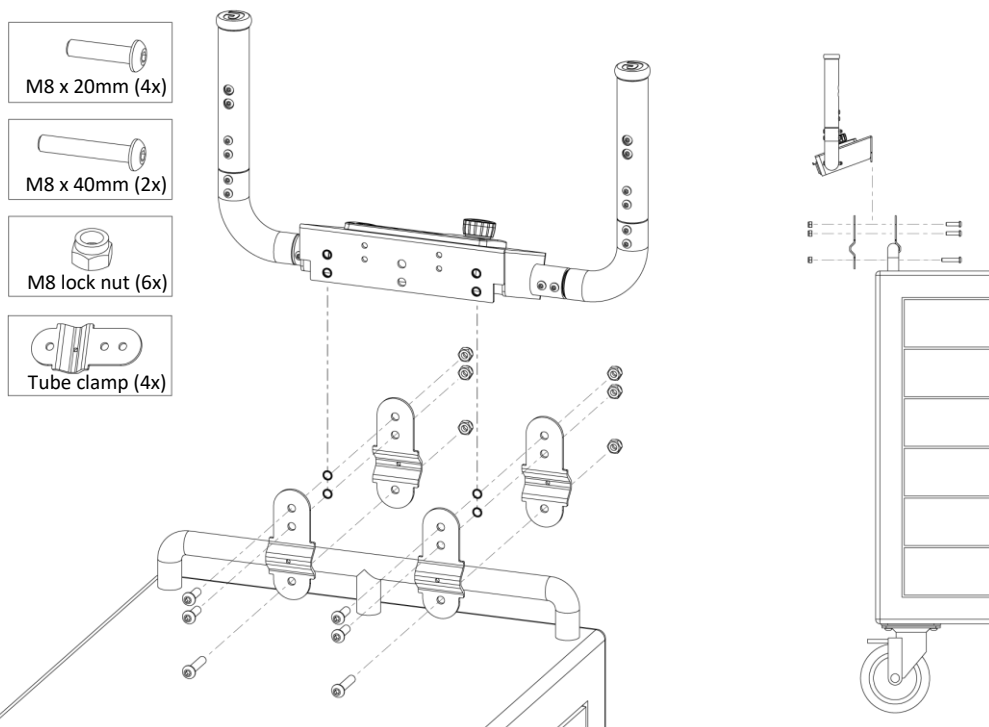
Start by connecting the extension cables to the Interface module:

1. Connect the Interface extension cable to the cable coming out of the plastic housing
2. Connect the Charge extension cable to the cable coming out of the charge plug
3. Connect the charge connector ground wire and frame connection wire to the threaded rod welded to the metal housing with a M5 lock nut.

After the cables have been connected and positioned, use the cover plate to lock them in place. The plate can be screwed onto the back of the interface housing.

5.3.1 Clamping the interface around a tube

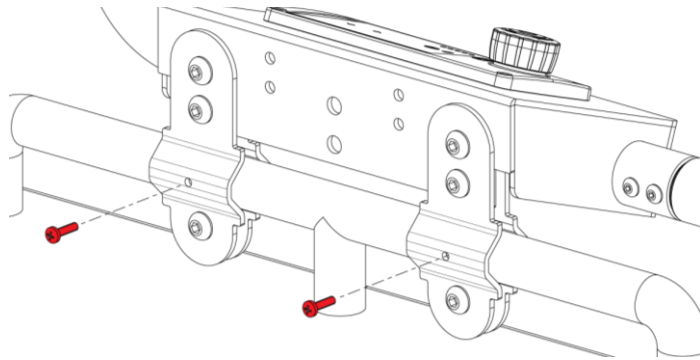
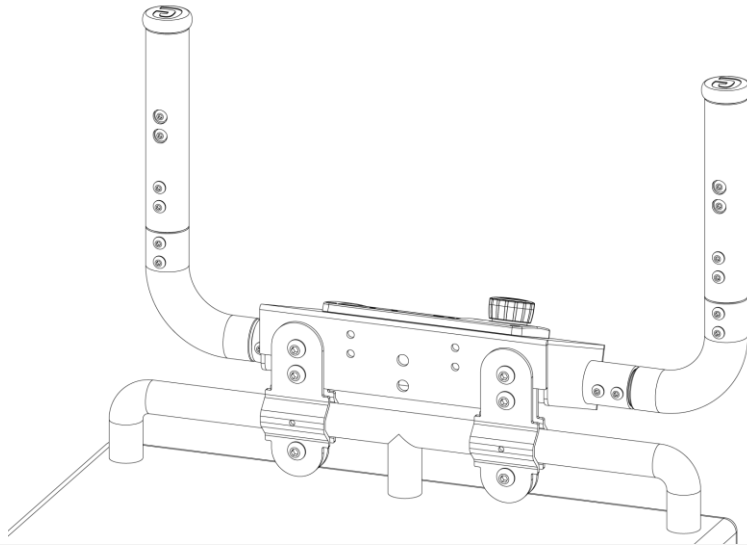
A2



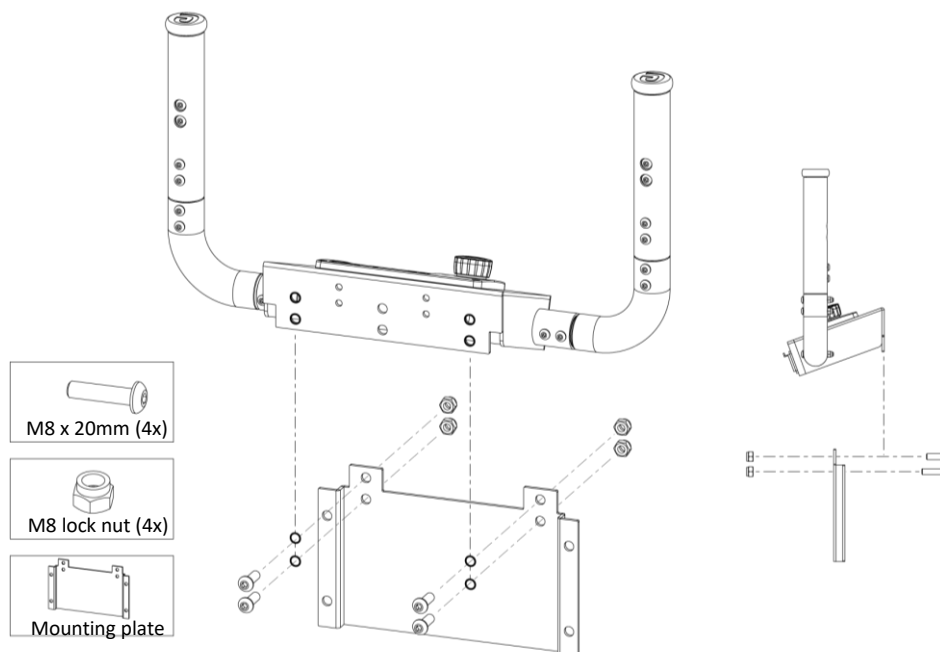
When clamping around a pushbar, use the clamp elements as shown in the image. Start with the top bolt and nut and work your way down. The bottom bolt will provide most of the clamping force. Screw until there is no more play on the pushbar when it is pushed.

Attention!

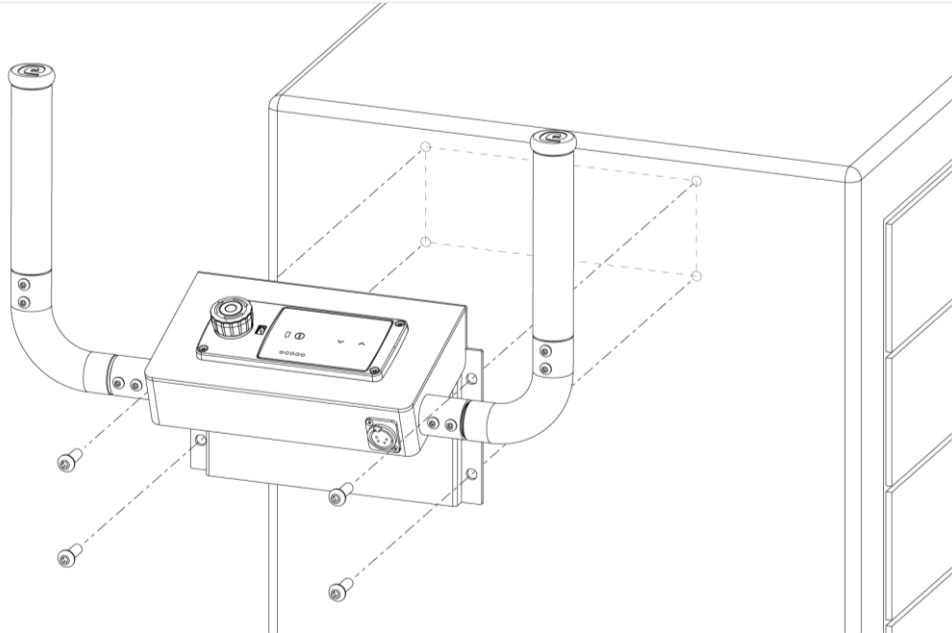
If clamping around the pushbar is not sufficient to prevent the interface from rotating around the pushbar, there are additional holes available to screw through the clamp and into the pushbar, for example by using self tapping screws (not included). This will prevent any rotation around the tube.

**A3**

Interface clamped around the pushbar.

5.3.2 Mounting the interface against a vertical surface**B2**

When using the flat mounting plate, first attach the interface module to the mounting plate as shown in the image

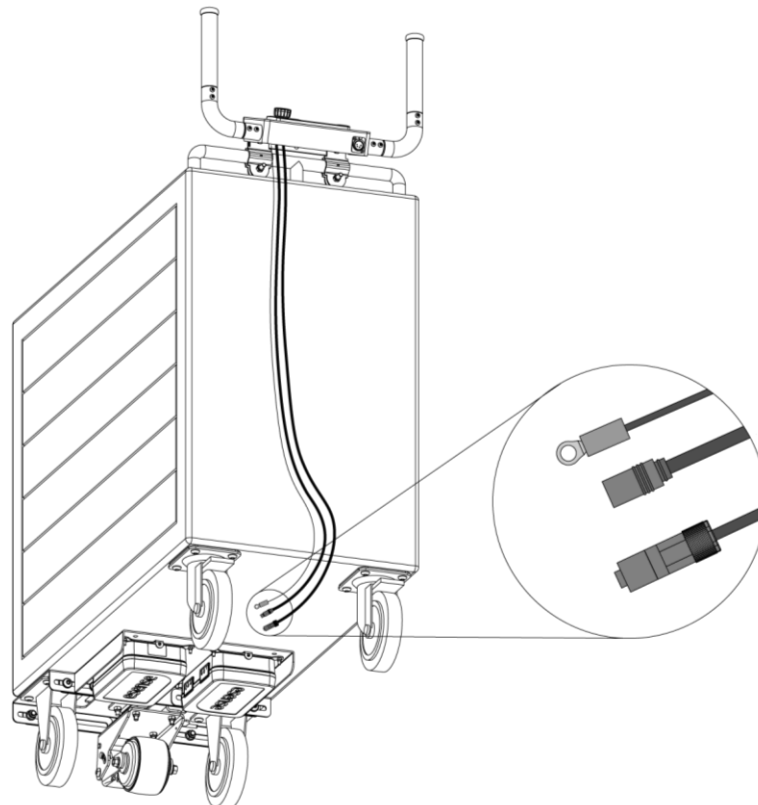


Then bolt the mounting plate to the trolley, for instance by bolting to pre-drilled holes, or by using self tapping screws (not included).

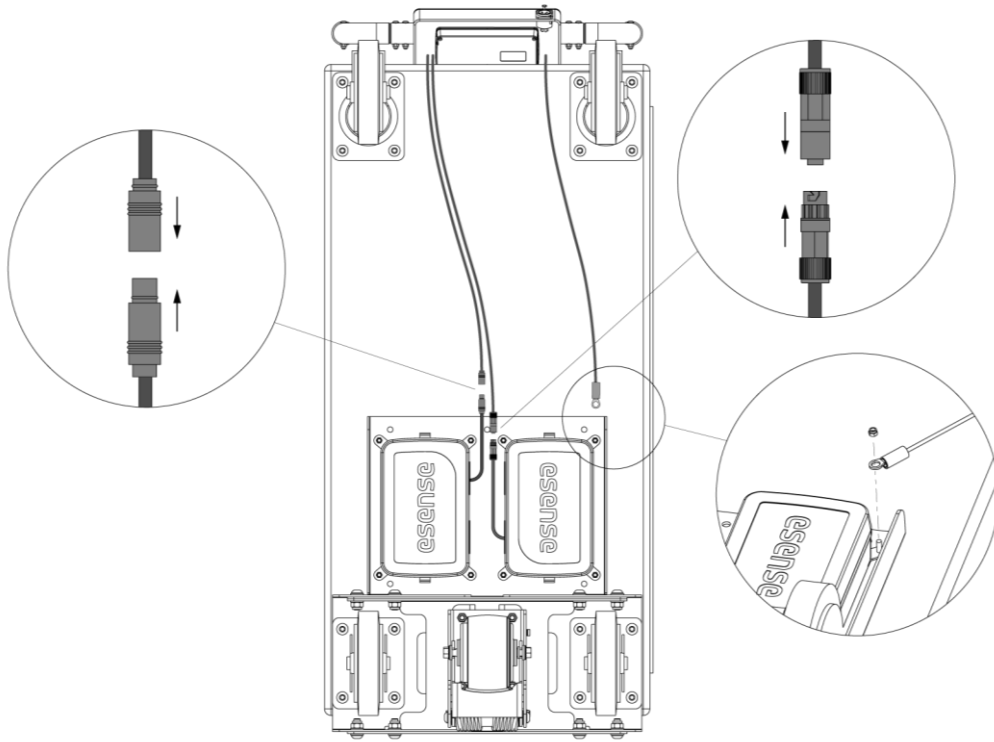
Attention!

Make sure the interface is placed at an ergonomic height at which users can easily push the trolley.

5.4 Routing and connecting the cables



Lead the 3 wires from the Interface to the underside of the trolley. Use zip ties to anchor the cables bundle at suitable positions. This prevents cables from shifting position and possibly interfering with use of the trolley or getting caught and damaged by the environment.



Attach each wire to the corresponding connector or mounting point indicated in the image.

1. Attach the Charge cable to the cable coming out of the battery.
2. Attach the interface cable to the cable coming out of the controller.
3. Attach the frame connection to any of the M5 threads/bolts used to mount the controllerbox.

Attention!

- Protect all cables from pulling and displacement, for example by choosing appropriate spots to tie them to the trolley with zip ties, or by leading them through the frame.
- Make sure there are no cables hanging loose underneath the trolley to ensure they don't get caught or damaged by objects in the environment during driving.

6 End tests

6.1 End tests after installation

1. Check if all cables are connected fully and correctly.
 - The connectors are pushed firmly into their counterparts
 - The cables are fixated to the trolley and have no loose hanging parts
2. Check if the interface module is assembled correctly and mounted firmly on the trolley. There should be no play between the parts of the handles, the Interface and the connection to the trolley.
3. Check if the Drivewheel is touching the ground
4. Check if the emergency switch is unlocked.
5. Activate the drive system by pressing the on/off button. Make sure both handles are not touched. At start-up, a beep will sound. The system activates correctly when after a few seconds a second beep sounds and the led next to the on/off button is lit green continuously. If one or more service LEDs are lit the system is in error.
6. Check if the drive support functions correctly and the trolley drives in a straight line when driving the trolley forwards and backwards. Drive at least 3 x 5 meters forwards and backwards. Notice any deviation to the intended driving direction.
7. Test the automatic braking system of the trolley by pushing it forward with a firm walking speed (app. 4 km/h). When releasing the sensor handles with both hands, the trolley shall stop within 3 meters. Repeat the test while moving the trolley backwards and releasing the handles.
8. Check the functionality of the emergency switch. In case it functions properly all LEDs on the user interface blink and power assisted driving is disabled. After unlocking the emergency switch the system can be activated again by shortly pressing the on/off button.
9. Connect the charger to the system while it is switched on. Within 5-6 seconds the battery indication LEDs will play an animation to indicate the battery is charging. When charging, the power assisted driving shall switch off.
10. Remove the charger from the system. Within 5-6 seconds the LED animation stops and power assisted driving is switched on again.

6.2 Example test report

#	Test	Result
1	Driveunit connectors firmly connected	
2	Interface and force sensitive handles are installed correctly	
3	Drivewheel touches the ground	
4	Emergency switch unlocked	
5	System activates correctly	
6	Power support forwards/backwards drives in a straight line	
7	Active braking forwards/ backwards	
8	Activate emergency switch/unlock emergency switch/restart system	
9	Drive de-activates after connecting charge cable	
10	Drive re-activates after disconnecting charge cable	

7 Maintenance

Below listed periodic checks are advised.

- Check the axis of the drivewheel for accumulation of hair and dust. Carefully remove any windings from the axis.
- Check the tyre of the drivewheel for wear and damage. Replace the wheel in case of irregular wear or damage to the tyre.
- Check the Interface module and force sensitive handle construction. There shall be no play between the various metal parts and between the interface and its connection to the trolley.
- Check the system for mechanical noise, loose parts and wear. In case of any irregularities stop use of the system and replace concerned parts.
- Check functionality of the Emergency switch.

All parts of FieldFit can be cleaned with a well-wrung wet cloth. Use an ordinary, non-abrasive detergent (pH 5.5-8).

Esense FieldFit has a technical lifetime of 10 years. Depending on use intensity, replacement of the battery pack and driveunit may be expected once during this system lifetime, due to aging and internal wear.

Wear of the battery pack may be experienced by faster loss of capacity and loss of peak current (Experienced by a switch to system service mode when current is required to start movement or climb slopes and a frequent log entry: Battery undervoltage). Wear of the driveunits may be experienced by increasing noise or failure of the drivewheel.

Refer to the esense FieldFit article overview for a list of all available (replacement) parts.

Attention!

Avoid the use of aggressive detergents/ solvents and excess of water. The components are not designed for exposure to large amounts (jets) of water. The system is not suitable for machine washing.

Attention!

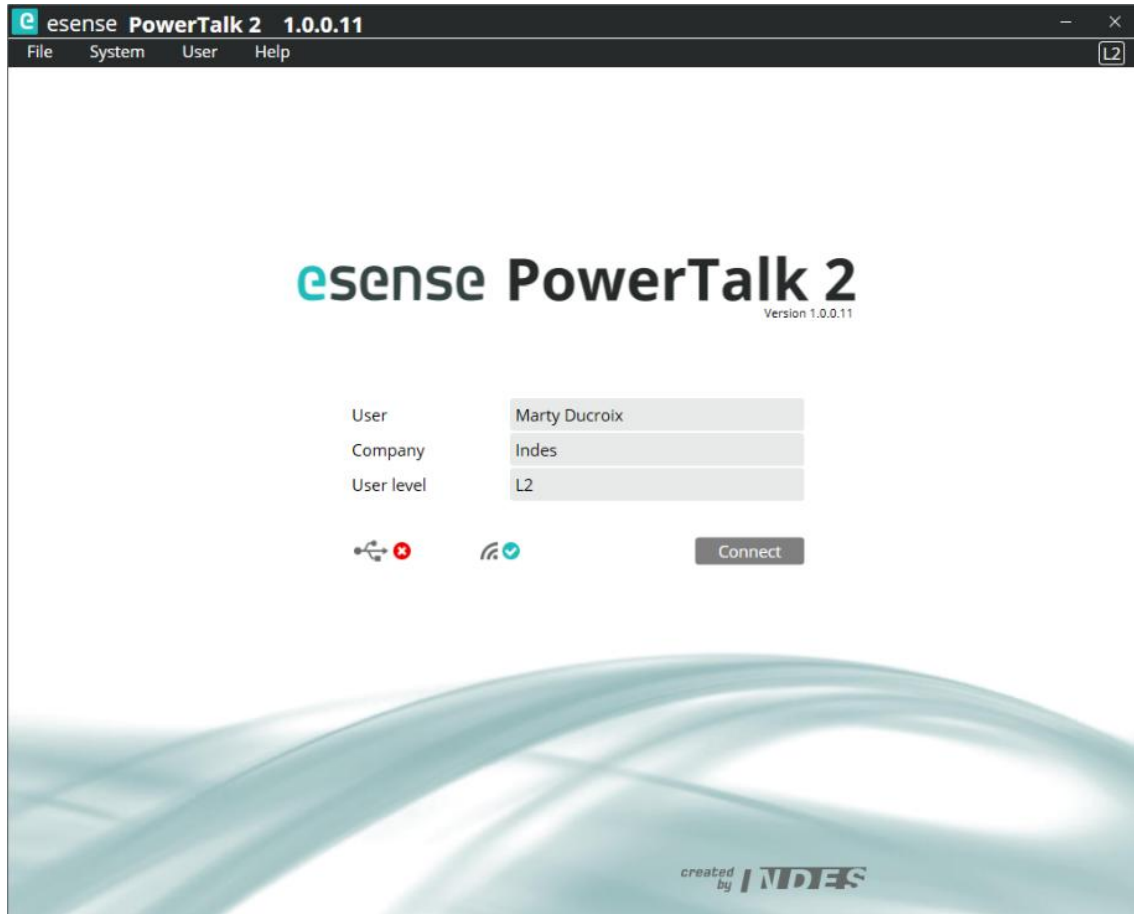
Always activate the mechanical parking brakes of the trolley and switch the system off before carrying out maintenance.

Attention!

The esense controller can become hot during use of the trolley. Make sure the controller has cooled off before executing service operations.

8 PowerTalk service software

PowerTalk is the smart Windows app to communicate with esense systems. Features include display of relevant system parameters, customization of esense performance and a system history that plays a central role in troubleshooting. Various types of users can use the software with different user rights. For end users a Level 1 key is available that provides functionality to do software updates and read and send system performance data to a service desk. Level 2 is available for service engineers. Additional to Level 1 this version includes basic settings and display of the system history. The most advanced version of PowerTalk is Level 3 which features extensive settings to tune your esense system.



PowerTalk can be downloaded at <http://powertalk.indes.eu>. Use of the software requires a license key. Level 1 keys are free for general use. Level 2 keys can be purchased for a small administration fee. Level 3 keys are available for trained engineers only.

Information on pricing and distribution of license keys can be requested at: info@esense-moves.com.

9 Revision list

Revision	Definition	Date
1.00	Release	30-03-2026
2.00	Updated version	28-05-2026

esense FieldFit is a product by:

Indes Healthcare BV	T +31 (0)53 4803920
Josink Esweg 1	E info@esense-moves.com
7545 PN Enschede	W esense-moves.com