



Empulse F35

Instructions for Use

Empulse



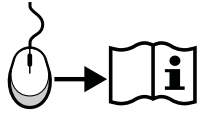
If you are visually impaired, this document can be viewed in PDF format at **www.SunriseMedical.co.uk**.

Pull Device Components

EN

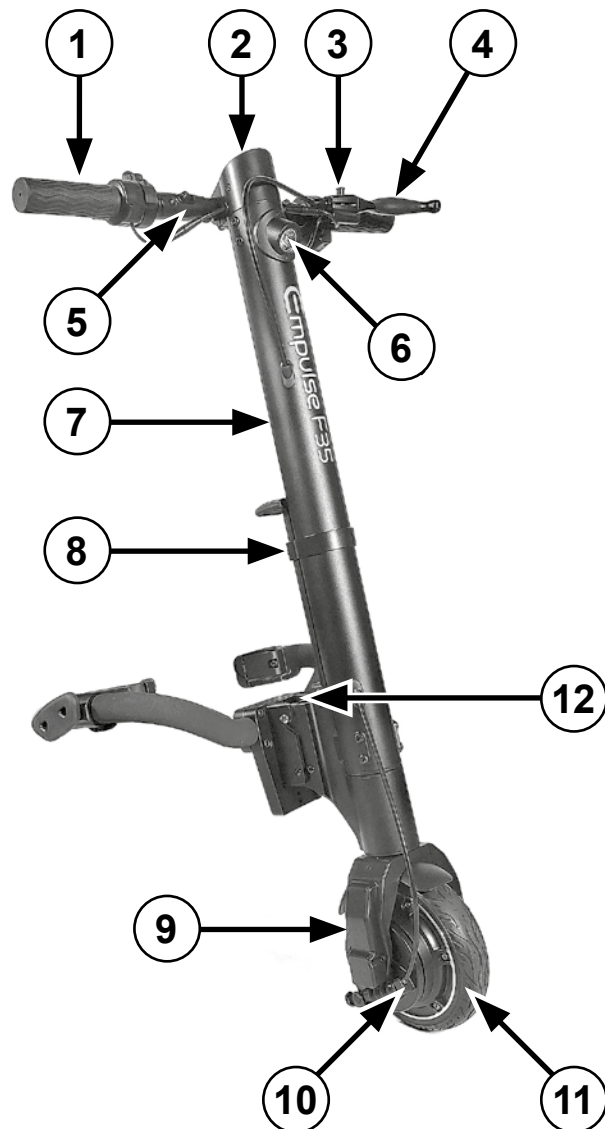


We at SUNRISE MEDICAL have been awarded the ISO-13485 certificate, which affirms the quality of our products at every stage, from R & D to production. This product complies with the standards set forth in EU and UK regulations. Options or accessories shown are available at extra cost.



 **EN 04**





1. Throttle
2. Display
3. E-Brake
4. Brake Lever
5. Handlebar
6. Lights
7. Frame
8. Battery
9. Fork
10. Hub motor
11. Front wheel
12. Quick-release lever



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Definitions of words used in this manual

Word	Definition
 DANGER!	Advice to the user of Potential Risk of serious injury or death if the advice is not followed
 WARNING!	Advice to the user of a risk of injury if the advice is not followed
 CAUTION!	Advice to user that potential damage to equipment may occur if the advice is not followed
NOTE:	General advice or best practice
	Reference To Additional Documentation

NOTE:

- Please keep a note of your local service agent's address and telephone number in the space provided.
- In the event of a breakdown, contact them and try to give all relevant details so they can help you quickly.
- The pulling devices shown and described in this user guide may not correspond in every detail exactly to your own model. However, all instructions are completely relevant, regardless of possible detail differences.
- The manufacturer reserves the right to alter without notice any weights, measurements or other technical data shown in this manual. All figures, measurements and capacities shown in this manual are approximate and do not constitute specifications.

Dealer signature and stamp

Foreword

Dear Customer,


We are very happy that you have decided in favour of a high-quality product from SUNRISE MEDICAL.


This owner's manual will provide numerous tips and ideas so that your new pulling device can become a trustworthy and reliable partner in your life.

For Sunrise Medical, it is very important that we have a good relationship with our customers. We like to keep you up-to-date about new and current developments at our company. Keeping close to our customers means: fast service, as little red tape as possible, working closely with customers. Whenever you need replacement parts or accessories, or if you just have a question about your pulling device – we are there for you.

We want you to be satisfied with our products and service. At Sunrise Medical we are constantly working to develop our products further. For this reason, changes can occur in our range of products with regard to form, technology, and equipment. Consequently, no claims can be construed from the data or pictures contained in this user's manual.

The management system of SUNRISE MEDICAL is certified to EN ISO 13485 and ISO 14001.

 As the manufacturer, SUNRISE MEDICAL, declares that this product conforms to the Medical Device Regulation (2017/745).

 As the manufacturer, SUNRISE MEDICAL, declares that the product conforms to the UK Medical Devices Regulation 2002 No. 618.

NOTE:

General user advice.

Not following these instructions may result in physical injury, damage to the product or damage to the environment!

Notice to the user and/or patient: Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

B4Me special adaptations

Sunrise Medical strongly recommends that in order to ensure that your B4Me product operates, and performs as intended by the manufacturer; all the user information supplied with your B4Me product is read and understood, before the product is first used.

Sunrise Medical also recommends that the user information is not discarded after reading it, but it is kept safely stored for future reference.

Medical Device Combinations

It may be possible to combine this Medical device with one or more other Medical Device or other product. Information on which combinations are possible can be found at www.Sunrisemedical.co.uk. All combinations listed have been validated to meet the General Safety and Performance Requirements, Annex I Nr. 14.1 of the Medical Device Regulation 2017/745.

Guidance on the combination, such as mounting, can be found within this manual.

Please contact your local, authorised SUNRISE MEDICAL dealer if you have any questions regarding the use, maintenance or safety of your pulling device.

In the case of there being no authorised dealer in your area and you have any questions regarding product safety or recalls, contact Sunrise Medical either in writing or by telephone.

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Do not use your pulling device until this manual has been read and understood.

Please follow the instructions contained within the Instructions for Use.

Use

The Empulse F35 is a powered pulling device, which is attached to a wheelchair, to support the mobility and integration of the wheelchair user in daily life. It is designed for personal use indoors or outdoors.

The maximum user weight (including both the user and any weight of accessories fitted to the pulling device) is marked on the serial number label. The serial number label is located on the frame.

Warranty can only be taken on if the product is used under the specified conditions and for the intended purposes.

Service life

The expected life of the pulling device is 5 years, provided that:

- It is used in strict accordance with the intended use.
- All service and maintenance requirements are fulfilled.

DANGER!

- Do not fit any unauthorized electronic equipment.

Area of application

The pulling device provides the user with the potential to safely cover long distances in an ergonomically and ecologically efficient manner, using their own wheelchair. It expands the activity radius significantly. The attached wheelchair must be equipped in accordance with road traffic regulations when used on public roads, pavements and spaces.

Indications

The adjustability, as well as the modular design, mean that it can be used by those who cannot walk or have limited mobility because of:

- Paralysis
- Loss of extremity (leg amputation)
- Extremity defect deformity
- Joint contractures/joint injuries
- Illnesses such as heart and circulation deficiencies, disturbance of equilibrium or cachexia as well as for elderly people who still have strength in the upper body.

Contraindications

The electrical pull devices and add on bikes shall not be used in case of:

- Perception disorder
- Imbalance
- Loss of both arms
- Joint contracture or joint damage on both arms
- Seating disability
- Physically and mentally not capable of safely operating the pull device and add on bike in all operating situations (steering, braking, ..)
- Not meeting the legal requirements for use on public roads.

NOTE:

Please note that driving a wheelchair in combination with a pull device requires sufficient cognitive, physical and visual skills. The user must be able to assess the effects of actions during the operation of the wheelchair/pull device and, if necessary, to correct them. These capabilities and the safe use of the additionally attached components cannot be assessed by Sunrise. These capabilities and the safe use of the additionally attached components cannot be assessed by Sunrise Medical as a manufacturer. We cannot accept any liability for any damage resulting from this.

Please also refer to the operating instructions of the wheelchair your pull device is to be combined with as well as the additionally mounted components. Instruct the user in the safe use of the wheelchair and the additionally mounted components. Inform users of specific warnings.

Operating Conditions

The pulling device should be able to cope with tarmac surfaces and firm paths with different topography. Avoid driving on unpaved or loose surfaces (e.g. on loose gravel, in sand, mud, snow, ice or through deep puddles of water), as this may expose the user to unforeseen risks.

We herewithin advise, that using the Empulse F35 with max. speed-settings higher than 6 kph is only permitted on public roads in certain countries and otherwise may only be used on private property.

In the absence of approval, in accordance with the road traffic laws, the Empulse F35 may not be driven on public roads, bicycle-lanes and pavements. You need to inform yourself about the country specific legislation regarding usage and your legal obligation to insure the Empulse F35. When you're travelling with your F35, always check the specific legislation in the respective country.

1.0 General safety notes and Driving limits

The technology and construction of this pulling device have been designed to provide maximum safety. International safety standards currently in force have either been fulfilled or exceeded in parts. Nevertheless, users may put themselves at risk by improperly using their pulling device. For your own safety, the following rules must be strictly observed. Unprofessional or erroneous changes or adjustments increase the risk of accident. As a pulling device user, you are also part of the daily traffic on streets and pavements, just like anyone else. We would like to remind you that you are therefore also subject to any and all traffic laws.

Be careful during your first ride with this pulling device. Get to know your pulling device.

DANGER!

- Exceeding the maximum load can lead to damage to the pull device, loss of control, or serious injury to the user and other people.
- Exercise caution when using the pull device. For example, avoid negotiating obstacles such as, steps, curbs, path edges or dropping down gaps without slowing down or braking first.
- The pull-device is not tested and approved according to ISO 7176-19. It is therefore not allowed to transport the user in the wheelchair with the F35 docked in a car. When transporting a combined unit made up of a pull device and wheelchair vehicle, the user must transfer onto the vehicle seat and must not sit on the combined unit. The combined unit itself (without user) must be tied down during transportation and secured against slipping.
- This pull device should be used exclusively to convey one person at a time. Any other use does not comply with the intended purpose.
- Use of the pull device is only recommended for those who have the right physical and psychological constitution to be able to cope with public traffic.
- Please note that you are subject to any and all traffic laws when riding in public traffic.
- As a beginner, you should ride particularly carefully at first.
- Familiarise yourself with the braking distances from various speeds.
- Familiarise yourself with the general traffic laws!
- In order to achieve a stable ride when travelling straight ahead, wherever possible, you should avoid hasty steering movements when travelling at speed or going round corners.
- A three-wheel vehicle is never as stable as a four-wheel vehicle and it may tip over as a result of sudden manoeuvres or going round bends too quickly.
- When you are riding, braking or manoeuvring, always hold the handlebars firmly with both hands. Failure to do so could increase the risk of an accident through steering error.
- The speed must be adjusted to suit the technical capabilities of the bike, terrain and operator.
- At night and dawn/dusk, always use the lights.
- Only ride on asphalt paths, or firm, smooth surfaces.
- Use caution when riding over curbs, steps, potholes, etc. as there is an increased risk of tipping over.
- Adjust your method of driving to your capabilities.
- Ride slowly and carefully, particularly when riding round corners.
- Do not touch the motor, because it can get very hot.
- Your pull device should be serviced by your dealer at regular intervals. (min. every year).
- As with all moving parts, there is a risk that fingers could become trapped. Please always handle carefully.
- If the pull device is subject to direct sunlight / external heat sources or low temperatures for long periods, parts of your pull device could become very hot (>41°C) or very cold (<0°).
- The pull device should not be used in stormy conditions, heavy rain/snow or on slippery or damaged surfaces.
- You should only use product combinations which have been approved by Sunrise Medical.
- The standard version of your pull device has been tested on the applicable requirements with respect to electromagnetic radiation (EMC requirements) In spite of these tests:
 - It cannot be excluded that electromagnetic radiation may have an influence on the pull device. For example:
 - mobile telephony
 - large-scale medical apparatus
 - other sources of electromagnetic radiation
 - It cannot be excluded that the pull device may interfere with electromagnetic fields. For example:
 - shop doors
 - burglar alarm systems in shops
 - garage door openers

In the unlikely event that such problems do occur, we request that you notify your dealer immediately.

- Avoid physical contact with the pull device's motor at all times. Motors are continuously in motion during use and can reach high temperatures. After use, the motors will cool down slowly. Physical contact could cause burns. Allow the motor after using at least 30 min. to cool down.
- If you do not use the pull device, ensure that it is not exposed to direct sunlight for lengthy periods of time. Certain parts of the pull device can become hot if they have been exposed to full sunlight for too long. This may cause burns or allergic reactions to the skin.

 **DANGER!**

CHOKING HAZARD – This mobility aid uses small parts which under certain circumstances may present a choking hazard to young children.

NOTE: The pulling devices shown and described in this user guide may not correspond in every detail exactly to your own model. However, all instructions are completely relevant, regardless of possible detail differences. The manufacturer reserves the right to alter without notice any weights, measurements or other technical data shown in this manual. All figures, measurements and capacities shown in this manual are approximate and do not constitute specifications.

NOTE: We would like to point out that the versions of the pulling device which drive faster than 6 kph are only permitted in road traffic in certain countries and otherwise may only be used on private land.

In the absence of approval, in accordance with the road traffic laws, the versions which drive faster than 6 kph version may not be driven on public roads or even cycle ways. It is your responsibility to find out the information about which legal regulations apply in your particular country and about the insurance or driving licence obligations for versions which drive faster than 6 kph.

If you order a version which has a speed of over 6 kph, please confirm this to Sunrise Medical with your signature, that you have understood this information and that we should deliver this version.

Safety instructions – prior to each ride.

DANGER!

- Check the conditions of your wheels, (including the wheels of your wheelchair) visually.
- Always check that the tread depth of your tyres is Okay.
- Check that the brake works correctly. The pull device may not be used if the brakes are not 100% functioning!
- Avoid damage to the Bowden cables. There is a risk of kinking the cable when you transfer to/from the device.
- Check the fork by visual inspection for damage (e.g. cracks and breakages)
- Check that all components, especially the bolts, are tight.
- Check that the handlebars are firmly fixed.
- Check the connection between the pull device and your wheelchair. Clamping must be on the metal tube without any parts, (e.g. calf strap, frame protectors) in between.
- Check the frame and the components of your wheelchair for any damage, (e.g. cracks).
- Repair or replace loose, worn, bent or damaged parts before using the device.
- Check that the lights are functioning and the reflectors are sound; they must be visible all the time during use.
- Ensure that your feet cannot slip off the foot plate of your wheelchair. Use a special fixing tool if necessary.
- Check all cables and electrical connections.
- Check that the battery is fully charged.
- Switch the device on and check the light.
- Always wear a helmet.

Safety instructions – while driving

WARNING!

- Make yourself familiar with the device in flat terrain before driving up or down slopes.
- Always hold the handlebars with both hands firmly as otherwise, there is a high risk of an accident through steering error.
- Always adapt your speed to your driving capability and to the traffic - / terrain conditions
- Use particular caution when approaching stairs, edges, drops or other hazard areas.
- Reduce your speed to walking pace and lean your body inwards, when driving round a bend.
- When waiting e.g. at a pedestrian crossing, a traffic light, on hills or slopes or at ramps of any type, always activate the brake.
- Due to the increased turning circle, turning can be sometimes impossible e.g. in corridors and other confined spaces.
- Only use the defined brackets to fix objects, (additional weights, bike panniers)

- When driving on pedestrian areas, observe the maximum permitted speed (walking speed).
- Always follow the road traffic regulations when driving on public roads and footpaths.
- Avoid driving on unpaved or loose surfaces (e.g. on loose gravel, in sand, mud, snow, ice or through deep puddles of water).
- Avoid abrupt steering actions.
- Avoid driving in parallel to slopes.
- Avoid turning on slopes.
- On slopes the traction of the driving wheel is lowered and the braking effect is considerably reduced. The driving style and speed should be always adjusted so that the product can be safely stopped at all times.
- Towing or using a trailer is not permitted.
- Driving on stairs is not permitted.
- Obstacles e.g. curbs must be run over always frontal / rectangular with very low speed to avoid tipping over and potential injuries. The max obstacle height is 50 mm, but this depends on the distance from the castors to the ground.
- It must be avoided that any wheelchair components or parts of your body get trapped when driving over or passing obstacles. This could result in falls and serious injuries as well as damage to the product.
- When driving on wet surfaces, there is an increase slip hazard because the traction of the tyres is reduced. Adapt your driving style accordingly.
- Always use the main brake to slow down your pull device.
- Sliding of the driving wheel during braking can be avoided by moving your body weight forward.
- Avoid strong braking actions while driving through bends.

Safety instructions - after your ride:

- Switch off the device immediately when it is not in use to avoid accidental operation / movements caused by accidentally touching the throttle.
- Switching off helps to preserve the battery charge.

2.0 Warranty

Warranty conditions:

1. If a part or parts of the pulling aid require repair or exchange as a consequence of a manufacturing defect within 24 months after delivery to the purchaser, then the affected part or parts will be repaired or replaced for free. The warranty will only cover manufacturing defects.
2. To enforce the warranty, please contact the supplier of your device – e.g. the Sunrise Medical Approved dealership or Healthcare provider with the exact details of the nature of the difficulty. Should you be using the device outside the area covered by the Sunrise Medical customer service agent, repairs or replacement will be carried out by another agency as designated by the manufacturer. The device must be repaired by a customer service centre/dealer designated by Sunrise Medical.
3. For parts, which have been repaired or exchanged within the scope of this warranty, we provide a warranty in accordance with these warranty conditions for the remaining warranty period for the device in accordance with point 1).
4. For original spare parts which have been fitted at the customer's expense, these will have a 12 months guarantee, (following the fitting), in accordance with these warranty conditions.
5. Claims from this warranty shall not arise, if a repair or replacement of a product or a part is required for the following reasons:
 - a. Normal wear and tear, which include batteries, armrest pads, upholstery, tyres, brakes shoes, etc.
 - b. Any overloading of the product, please check the EC label for maximum user weight.
 - c. The product or part has not been maintained or serviced in accordance with the manufacturer's recommendations as shown in the user instructions and/or the service instructions.
 - d. Accessories have been used which are not specified as original accessories.
 - e. The product or part having been damaged by neglect, accident or improper use.
 - f. Changes/modifications have been made to the product or parts, which deviate from the manufacturer's specifications.
 - g. Repairs have been carried out, before our Customer Service has been informed of the circumstances.
6. This guarantee is subject to the law of the country in which the Sunrise Medical product was purchased. * Means the Sunrise Medical facility from which the product was purchased.

Liability

If the pulling device:

- Is handled improperly
- Is not maintained in accordance with the maintenance schedule
- Is commissioned and used contrary to the instructions in this manual
- Has had repairs or other works carried out by non-authorized persons, or third-party parts installed or connected without prior agreement with Sunrise Medical, then Sunrise Medical is not responsible for the safety of the pulling device.

3.0 Handling

Delivery:

Your new pull device is delivered fully assembled in a cardboard box. In order to avoid any damage during transportation, loose parts or parts to be fitted, are packed separately in the cardboard box.

Unpacking:

- Check the shipping cardboard box for external damage which may have been caused during transportation.
- Remove all packaging material.
- Take the pull device carefully out of the box and check that it is intact.
- Check all parts for surface damage, scratches, cracks, dents, distortions and other defects.
- The scope of delivery consist usually of the pull device alongside connecting tubes with docking clamps and charger.

CAUTION!

- The pull device may only be used with the delivered docking system and the appropriate frame clamps for your wheelchair. The pull device must be handed over ready to use from Sunrise Medical or an authorised Sunrise Medical dealer.
- Before using for the first time, the battery should be fully charged.

Fitting the display:

The display has been specifically programmed for your pull device and is delivered installed with the pull device.

NOTE: Should you find any damage, or if any parts are missing please let us know immediately.

NOTE:

- Wherever torque settings are specified, it is strongly recommended that a torque meter (not included), is used to verify correct torque specification is achieved. If no other information is given, the generic torque for M6 screws is 7 Nm.

CAUTION!

- Some of the screws that are used in manufacture have a thread lock (blue dot on the threads) and can be used up to three times, then they must be replaced by new screws with thread lock. Alternatively, you can put Loctite™ 243.

Apply threadlock to the screws and re-fit them.

Storage:

The pull device should always be stored in an environment with low humidity, on an easy to clean surface at ambient room temperature (+15°C to +25°C).

Transport:

It is not allowed to transport the user in the wheelchair with the F35 docked in a car. When transporting a combined unit made up of a pull device and wheelchair vehicle, the user must transfer onto the vehicle seat and must not sit on the combined unit. The combined unit itself (without user) must be tied down during transportation and secured against slipping.



This label on the product indicates that the pull device is not tested and approved according to ISO 7176-19. It is therefore not allowed to transport the user in the wheelchair with the F35 docked in a car.

⚠ WARNING!

- Always use a properly secured vehicle seat.
- The product and all its components must be secured during transport so that they are not damaged (e.g. by falling over) and do not become any risk to other people.

⚠ CAUTION!

- When loading make sure that the cables are not caught up, become kinked or otherwise damaged.
- The pull device may not be used with damaged cables.

Security:

- To protect your pull device against theft and also against unauthorized use, please use a suitable lock, such as those designed for bicycles.
- For extra security activate the password protection in the menu (please see section settings PIN check)

Foldable Handlebar for Transport and Storage:

- The handlebar of the F35 can be folded by pulling the release pin (Fig. 3.1 - A) on the front and back of the handlebar at the same time.
- The handles will lock in folded position (Fig. 3.2). To unfold please pull the release pin again.

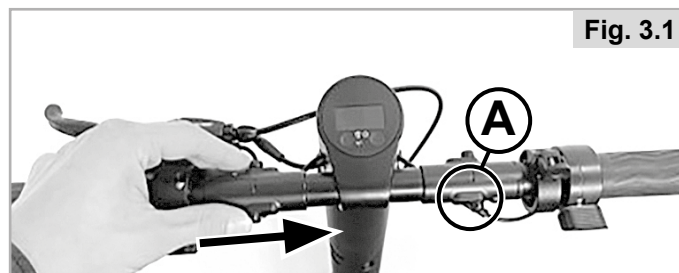


Fig. 3.1

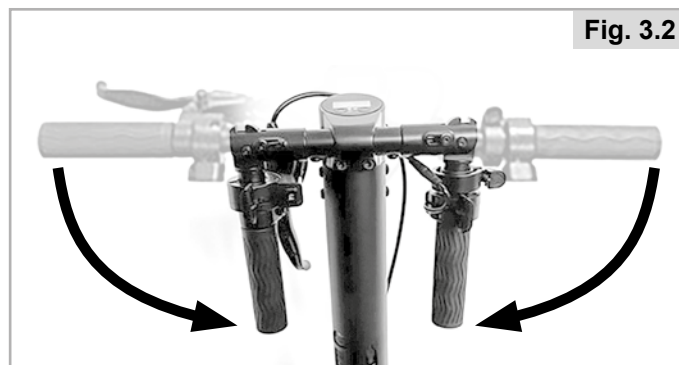


Fig. 3.2

4.0 Fitting to the wheelchair for the first time

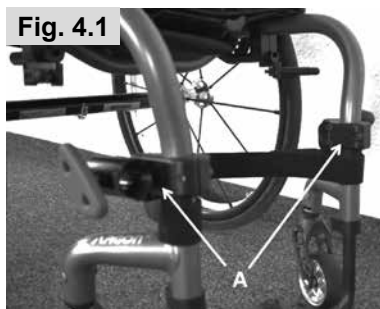
4.1. Fitting the clamps to the wheelchair

The pulling device must only be fitted to wheelchairs for which there is a reciprocal combination declaration between Sunrise Medical and the manufacturer of the wheelchair.

The delivery includes the appropriate clamps for your wheelchair. If you have ordered the clamps for frames with round tubes, then reducers for frame diameters of 19 mm, 23 mm, 25 mm or 28.6 mm are included. These must be inserted into the clamps prior to assembly, depending on the frame tube diameter (the shoulder of the reducer should be flush with the clamp and be facing upwards).

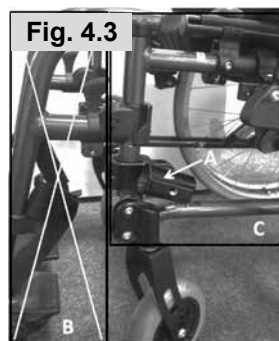
Position the clamps (Fig. 4.1 - A) on both sides of the wheelchair and frame. When fitting them, select a straight part of the frame tube which is not curved or angled. Position the clamps in such a way that they are parallel to one another, and are at the same height on the frame. Tighten the Allen screws (Fig. 4.2 - B) on the front and rear of the clamps several times on one side, then the other.

Then tighten the Allen screws with a torque of 7 Nm.



NOTE:

For wheelchairs with swingaway and removable footrest (Fig. 4.3), the clamp (A) must be fitted on the main frame of the wheelchair (area C) and under no circumstances are they to be fitted on the removable footrests (area B).



! DANGER!

- If the clamps are fitted on removable footrests this will lead to damage to the wheelchair and can lead to a fall and serious injury to the user.

! CAUTION

- Make sure that the Empulse F35 is securely attached to the wheelchair.
- Check the torque of the clamps at regular intervals.

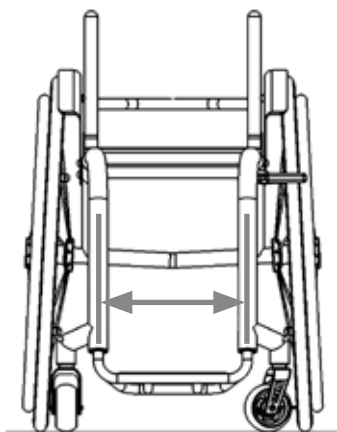
NOTE:

- Wherever torque settings are specified, it is strongly recommended that a torque-wrench (not included), is used to verify correct torque specification is achieved. If no other information is given, the generic torque for M6 screws is 7 Nm.

! CAUTION:

- Some of the screws that are used in manufacture have a thread lock (blue dot on the threads) and can be used up to three times, then they must be replaced by new screws with thread lock. Alternatively, you can put Loctite™ 243 threadlock on the screws and re-fit them.

4.2. Fitting the pull device



There are different front frame width available to fit your individual wheelchair measurements. Measure the width from center front frame tube to center front frame tube on the mounting height of the clamp (249mm to 370mm from the ground to upper edge of the clamp) and then select the front frame width on the order form (from 260mm to 480mm in 10mm steps).

NOTE:

- A straight section of the frame tube at a minimum of 45mm is necessary for the attachment of the clamps.
- The optimal angle of the F35 to the ground is 80°. For optimal performance, it is recommended not to fall below the 249mm minimum mounting height (measured from floor to upper edge of the clamp):

Adjusting the subframe to the right front frame width and angle

NOTE: Make sure, if needed, the appropriate reducers for your wheelchair frame diameter are inserted into the clamps (see section 4.1).

1. Rotate clamps and align with spirit level and tighten the set screw (Fig. 4.4)
2. Insert docking tubes to the preferred depth and align with the small black bracket (Fig. 4.5)
3. Tighten the handscrews when both tubes are aligned to each other (Fig. 4.6).

DANGER!

The tubes of the intermediate sub-frame must, in any case, be pushed completely into the clamps and must be at least 15 mm longer than the clamps. Between the ends of the tubes of the intermediate subframe and the drive wheels a gap of at least 20 mm must be maintained. If this is not the case with a correct mounting position, the tubes of the intermediate subframe must be shortened with the aid of a pipe cutter, so that this gap can be maintained.



Fig. 4.4



Fig. 4.5



Fig. 4.6

- Place the castor wheels on the spacers included in the delivery to ensure that the gap between castor wheels and floor of 40mm (Fig. 4.7).
- Mount the central bracket, make sure that the central bracket is centred between the front frame tubes and the mark of the small bracket is oriented upwards (Fig. 4.8). Slightly tighten the upper screws first that there is a 2mm gap from small to main bracket (Fig. 4.9). Then slightly tighten the lower screws that the central bracket still can be rotated (Fig. 4.10).

⚠ CAUTION:

Always observe the correct torque.



Fig. 4.7

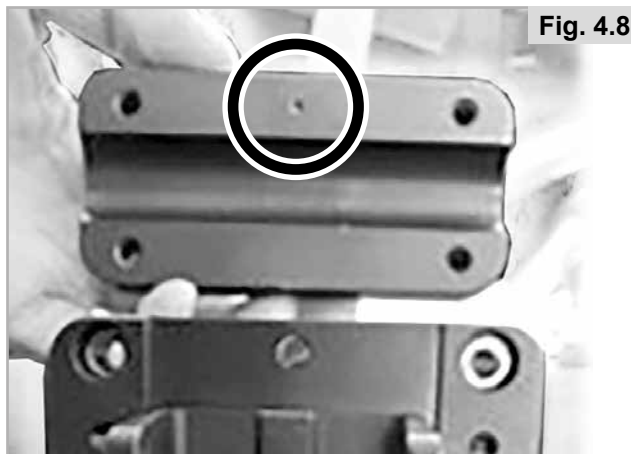


Fig. 4.8



Fig. 4.9

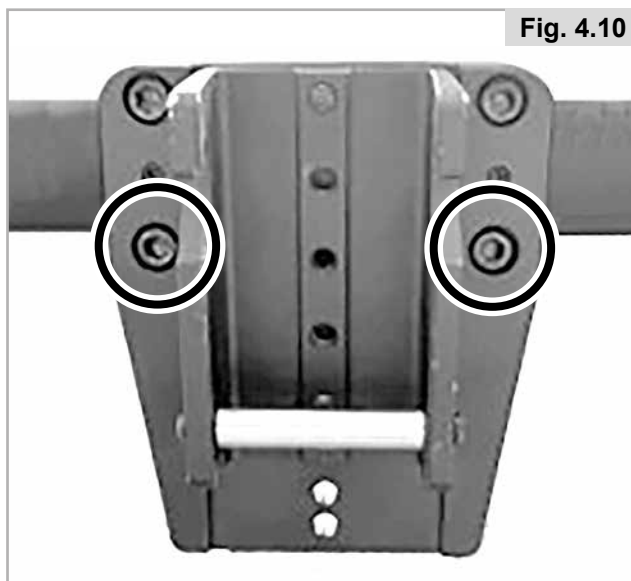


Fig. 4.10

6. Dock the F35 to the wheelchair and measure the angle of the tube (80° is the optimal angle) (Fig. 4.11).
 - a. When the angle of the F35 is to low, move the docking bracket upwards by undoing the screws moving up and retighten the screws (Fig. 4.12).
 - b. When the angle of the F35 is to steep, move the docking bracket downwards by undoing the screws moving down and retighten the screws (Fig. 4.13).



NOTE: moving one screw hole up or down will change the angle by around 2.5°

7. Individual angles of the F35 can be realized by moving the docking bracket up or down (Fig. 4.12 / 4.13).

⚠ DANGER!

- In any case, make sure that the gap between the feet of the user and the drive wheel is at least 50mm, even at full steering.
- Under no circumstances the drive wheel must touch parts of the wheelchair or the user's feet, this may cause serious injury.

8. Tighten 8 screws on the docking bracket clockwise by 16Nm (Fig. 4.14).

⚠ CAUTION:

Always observe the correct torque.

⚠ DANGER!

Re-tighten screw after 30min before using the F35, then retighten again after 24hrs.

⚠ DANGER!

- In any case, make sure that the gap between the feet of the user and the drive wheel is sufficiently large, even at full steering lock.
- Under no circumstances must the drive wheel touch the user's feet during driving, this may cause serious injury.

NOTE:

Wherever torque settings are specified, it is strongly recommended that a torque meter (not included), is used to verify correct torque specification is achieved. If no other information is given, the generic torque for M6 screws is 7 Nm.

⚠ CAUTION:

Some of the screws that are used in manufacture have a thread lock (blue dot on the threads) and can be used up to three times, then they must be replaced by new screws with thread lock. Alternatively, you can put Loctite™ 243 threadlock on the screws and re-fit them.

Fig. 4.12



Fig. 4.13



5.0. Docking and de-docking of the pull device by the user

⚠ DANGER!

- Always make sure that the device is switched off before docking and de-docking.
- Ensure the wheelchair is fully connected with the pull device before use.
- As with all moving parts, there is a risk that fingers and / or clothing could become trapped. Be extra careful when operating the clamp-lever and the locking-bolt.

5.1. Docking

1. Switch the pull device off using the switch on the Display (Fig. 5.1).
2. Apply the wheelchair brakes (Fig. 5.2).
3. Insert the subframe into the docking clamps (Fig. 5.3).
4. Now rotate the tommy screws of the clamps in a clockwise direction until they are hand tight and the intermediate sub-frame is securely held in the clamps (Fig. 5.4).

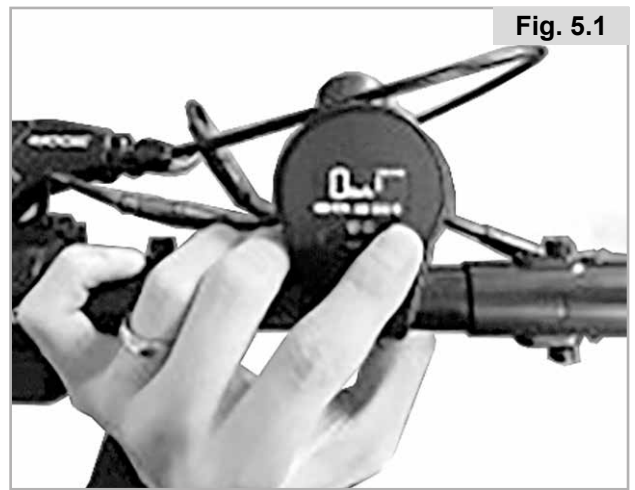


Fig. 5.1



Fig. 5.2



Fig. 5.3

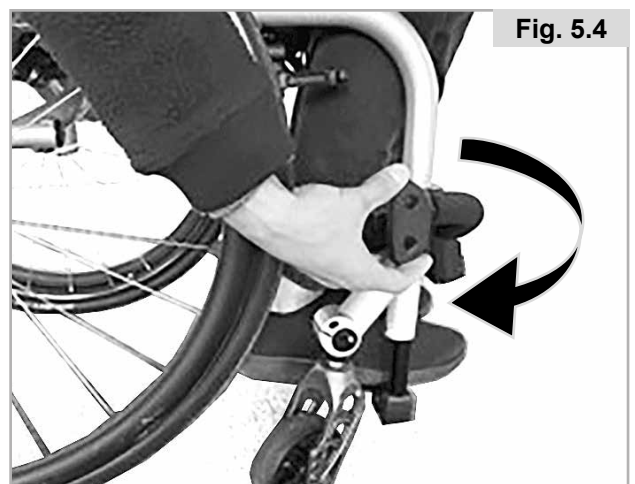


Fig. 5.4

5. Lift the pull device from the floor and insert the Docking pins into the central bracket (Fig. 5.5 - Fig. 5.6).
6. Push the handlebar forwards/upwards until the locking bolt automatically clicks into place (Fig. 5.7).
7. Only release the wheelchair brakes just before setting off (Fig. 5.8).



DANGER!

- Before setting off, ensure that the pulling device is correctly docked and that all locks are closed.
- If the locks cannot be closed properly, or you have the feeling that they are not properly closed, please contact your dealer for this to be checked. Under no circumstances should you set off, there is a risk of accident and injury.
- The gap between castors of the wheelchair and the floor must be at least 40 mm - otherwise there is a risk of accident and injury.
- The docking and de-docking procedures should always take place on an even surface.
- With all moving parts, pay attention to your fingers - there is a risk of finger entrapment.

NOTE:

- Before setting off, take a moment and go through the following checklist
 - Both tubes of the intermediate sub-frame are complete and are pushed into the clamps to the same point on both sides. The ends of the tubes are at least 15 mm longer than the clamps and end at least 20 mm away from the drive wheel.
 - The tommy screws are tightly closed on both sides and also clamp the intermediate sub-frame securely.
 - The locking mechanism is securely locked.
 - The gap between the castors of the wheelchair and the floor is at least 40mm.

5.2. De-Docking




To de-dock, proceed as follows:

1. Apply the wheelchair brakes.
2. Switch the pull device off using the switch on the battery.
3. Push the handlebar gently forwards/upwards.
4. Pull and hold the docking release lever on the main tube
5. Now lower the pull device slowly until the castors of the wheelchair touch the floor.
6. Place the Pull device besides
7. Undo the tommy screws of the clamps on both sides and pull the subframe until the tubes of the intermediate sub-frame have been pulled completely out of the clamps.

DANGER!

- Make sure that you support the pull device before you pull the docking release lever - there is a risk of injury if the pull device lowers in an uncontrolled manner.
- With all moving parts, pay attention to your fingers - there is a risk of finger entrapment.
- The docking and de-docking procedures should always take place on an even surface.
- Place the pull device carefully onto the floor so that it does not get damaged.

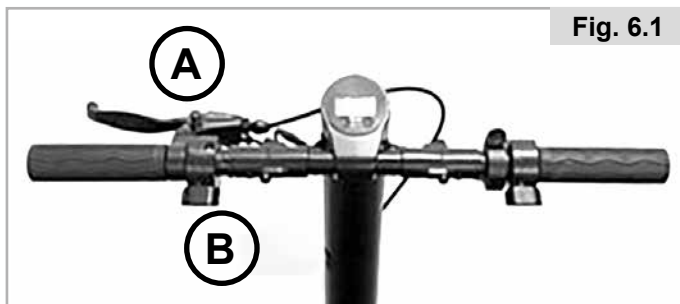
6.0 Operation

Word	Definition
 DANGER!	Advice to the user of Potential Risk of serious injury or death if the advice is not followed
 WARNING!	Advice to the user of a risk of injury if the advice is not followed
 CAUTION!	Advice to user that potential damage to equipment may occur if the advice is not followed
NOTE:	General advice or best practice

6.1. Brakes

The pulling device has two brakes (Fig. 6.1):

- a mechanical disk brake which is operated by a brake lever on the handlebar (A) (left)
- an electrical brake, which is operated using the operating paddle on the handlebar (B) (left). The electrical brake only works when the pulling device is switched on and ready for use.



Before driving, familiarise yourself with the operation, response and braking force of both brakes

DANGER!

- The electrical brake only works when the pull device is switched on and ready for use.
- You will only achieve the maximum brake performance with the mechanical disk brake.
- Hard and sudden application of the brakes may cause you to fall forward with your upper body, resulting in possible injury. Therefore always stabilise yourself by holding onto the handles firmly with both hands.
- Braking power can be severely decrease by any or all of the following:
 - Worn tyre tread
 - Soiled and wet tyres
 - Worn brake pads
- Ensure that the brake pads and brake discs do not become contaminated with oil and/or grease. If this happens the brake pads must be replaced. The brake disc must be professionally degreased with a brake cleaner.
- The drum brake is not self-adjusting and needs to be re-adjusted when the brake pads wear. Please contact your dealer to carry out this work.
- Be aware that the condition of the ground surface can significantly affect braking efficiency.
- Be aware that the stopping distance is extended when braking on a slope.
- The braking effect will be greatly reduced if the surface is wet, dirty, sandy, stony, uneven or otherwise compromised by environmental conditions. It is best to avoid these conditions. If this is not possible adapt your driving style to avoid the risk of potentially serious accidents.
- Always check the efficiency of the brakes before starting your journey to ensure that they are working correctly. The brakes should be checked regularly by your dealer and adjusted if required.
- If you stop on a steep slope (upwards), it can happen that the brake of the pull device cannot hold the combined unit because of a lack of traction on the front wheel.

6.2. Switching on and off

To switch your pull device On/ Off please press the right button on the display (for 3 seconds).



- You can switch the lights on by holding the left button on the display pressed for 3 seconds. To switch off, press the left button again for 3 seconds.



WARNING!

- Always switch the pull device off before docking or de-docking in order to avoid unintentional operation.

6.3. Selecting the direction of travel

In order to change the direction of travel, the pull device must be brought to a standstill. Then push the left button until the display shows "R" (1-2-3-2-1-R) next to the speed indication. The throttle will move the pull device backwards (Fig. 6.2).

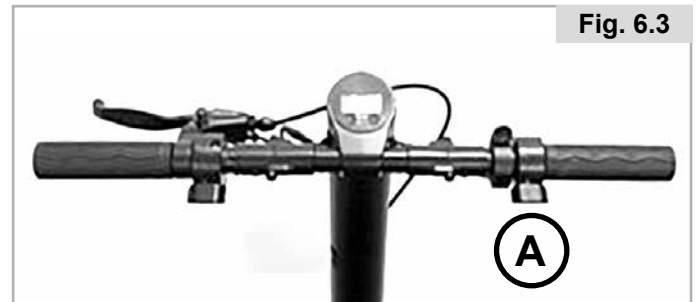


DANGER!

- The direction of travel can only be changed when the device is stationary. Changing the direction of travel only has an effect once the device has come to a standstill.
- Before setting off each time, check the forward / reverse gear indication on the display in order to avoid unintentionally moving backwards (risk of serious injury).
- When driving backwards take note of your environment in order to avoid collisions.
- Please note that the steering behaves differently when going backwards compared with going forwards. Abrupt steering movements can lead to a fall (risk of serious injury).

6.4. Controlling the speed (throttle)

- Using the throttle (Fig. 6.3 - A) you can control the speed with the thumb of your right hand.
- By applying greater pressure, the speed increases, by reducing the pressure, the speed will drop.
- When you let go of the throttle, the speed will drop, the pull device will roll to a standstill.



DANGER!

- Always adapt your speed to your environment in order to avoid collisions (risk of serious injury).
- Familiarise yourself with the way your combined unit handles cornering before you drive at higher speeds (risk of serious injury).
- Before activating the throttle always check that the direction of travel is set to the required direction of travel.
- Always switch the pull device off when docking and de-docking as well as when it is not being used in order to prevent accidental activation of the throttle.

NOTE:

- Driving at full throttle for long periods of time can mean that the motor and controller is subject to extreme thermal load. In order to avoid overheating, the power will be restricted until the motor reaches a normal operating temperature again.

6.5. Selecting the drive levels

- Different drive levels (1, 2, 3) can be selected using the display, these determine the max. achievable speed in that particular drive level.
- The drive levels can be selected using the left button on the display. The selected drive level will be shown on the display.

NOTE:

- The max. speed and max. motor performance will only be achieved in drive level 3.

6.6. Cruise control

- By using the pushbutton (Fig. 6.4 - B) which is integrated into the housing of the electrical brake the current speed of the pull device can be maintained (cruise control) without having to hold the throttle.
- Accelerate the pull device to the required speed, hold the throttle in position and then press the cruise control pushbutton (B). The pull device will now hold that speed, even if you let go of the throttle.

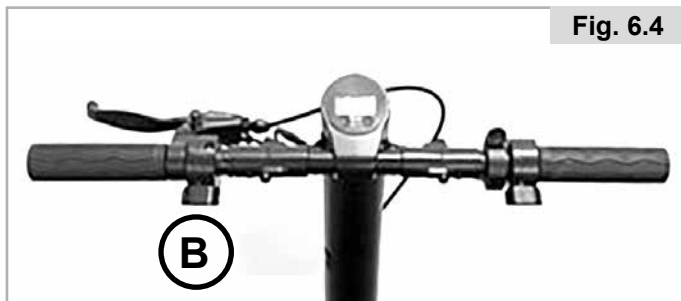


Fig. 6.4

- By pressing the pushbutton again or activating the brake (both mechanical and also the electrical brake), the cruise control will be deactivated immediately.
- When the cruise control is activated, it is not possible to accelerate using the throttle, to do this you will need to deactivate the cruise control.

! DANGER!

- The cruise control can only maintain the set speed in terms of available motor power. If you are going up a slope with the cruise control activated, the speed may go down.
- When going downhill with the cruise control activated, it will attempt to maintain the set speed with the aid of the electrical motor brake. At the point when the slope is too steep and the electrical brake power is no longer sufficient, the speed will increase. If necessary, you will need to activate the mechanical brake in order to maintain the required speed.
- After the pull device is switched on by pressing the “On/Off” button for 2 seconds (also see “Switching on and off”) the display shows the current speed in the main screen. In addition, the selected drive level (after switching on, drive level 1 is pre-selected) as well as the current battery capacity is displayed.

! DANGER!

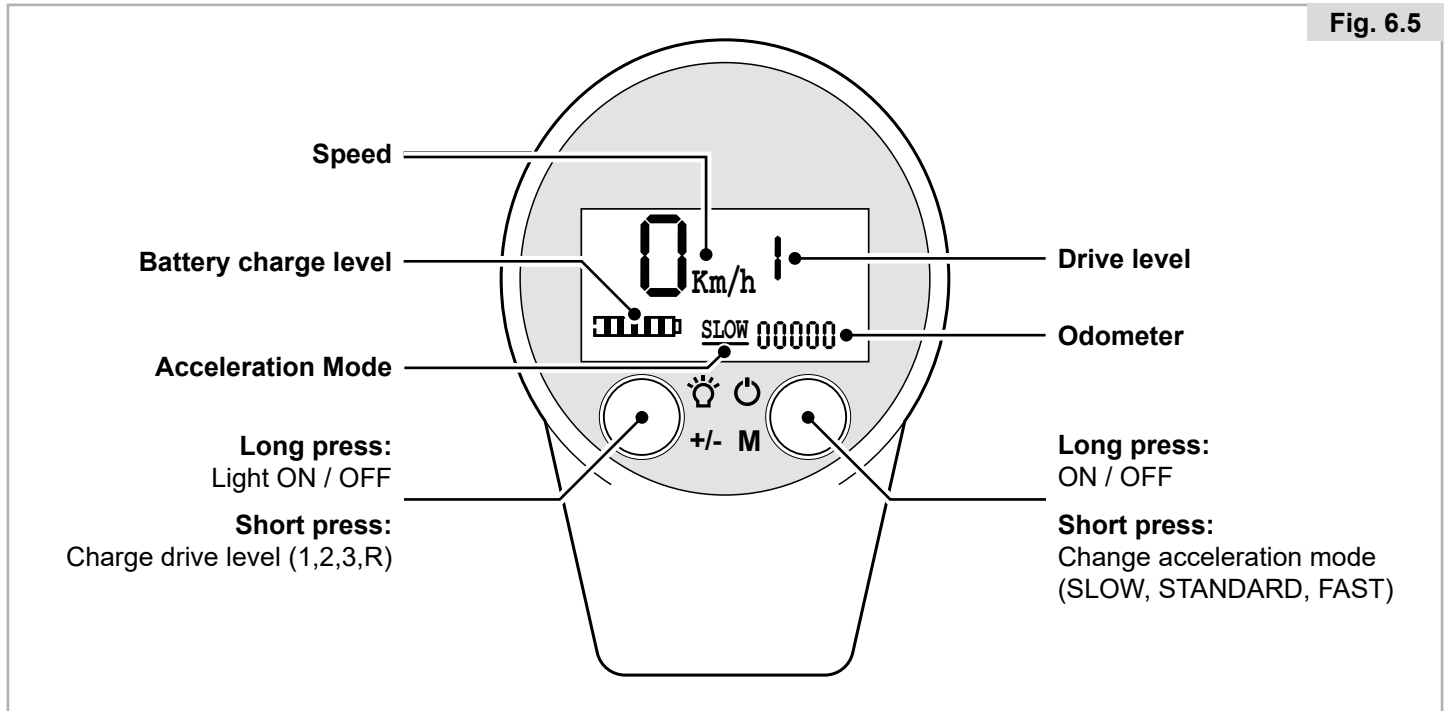
- Familiarise yourself with how the cruise control works before you use it. Practice activation/deactivation at low speeds.
- Even with the cruise control activated, you need to be constantly attentive and be ready to brake.
- Pay particular attention to your speed when going downhill with the cruise control activated. Control the speed manually if necessary using the mechanical brake (risk of serious injury).

NOTE:

- If you do not use your pull device for long periods of time, we recommend that you switch your pull device on every 4 weeks and allow the wheel to rotate for approx. 5 minutes at low speed in order to guarantee that the grease that is there is distributed over all bearing positions, this will prevent corrosion of the bearings.

6.7. Functions of the display (Fig. 6.5)

Fig. 6.5

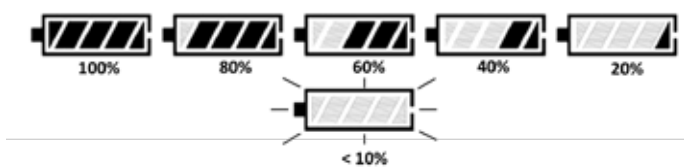


6.7.1 Lights:

The lights can be switched on or off by pressing the left button for 2 seconds. This is displayed by the relevant symbol on the display (upper right corner).

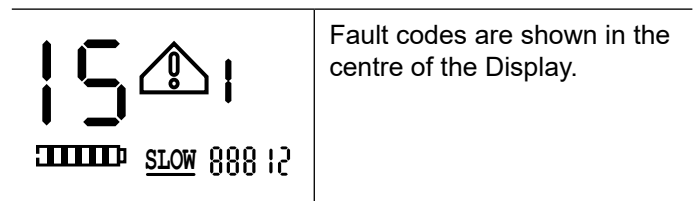
6.7.2 Battery capacity:

This is displayed by the battery symbol. As soon as the battery display starts to flash, the battery must be charged immediately.



6.7.3 fault code display (Fig. 6.6):

When the electronics detect a fault in the system, a warning symbol (!) is shown next to the fault code.



Faults can arise once sporadically. Each time the device is restarted, the fault code is deleted. If the fault should arise again, we recommend that you make a note of the fault code and contact your dealer.

⚠ DANGER!

Only carry out setting work when the device is stationary and never when driving.

Display error code	Error description	Item	Notes
0	Undervoltage, low battery level (undervoltage protection)	Battery	Please charge in time
1	Overvoltage, battery charge too high	Battery	Need to unplug the charger
2	Controller failure	Controller	Return for repair
3	MOS tube temperature is too high (controller temperature is too high) (controller over temperature protection)	Controller	Stop using the device for 15 minutes, then power off and restart the device to see if the fault is recovered. If it can not be recovered, return it to the factory for maintenance
4	Display and controller communication failure	Controller & Display	Check whether the connecting line between the controller and the display is normal . If it is normal as well as the fault code, return it to the factory for maintenance.
5	Hall fault	Controller & Motor	Hall fault check whether the controller and motor Hall wires are normal . If they are normal as well as the fault code, return them to the factory for maintenance.
6	Throttle Fault	Throttle	Check the throttle dial connection cable or replace the dial to see if the fault is recovered. If it cannot be recovered, return it to the factory for maintenance.
7	E-brake fault	Throttle	Check the E-brake connecting line or replace the dial to see if the fault is recovered. If it is not recovered, return it to the factory for maintenance.
9	Motor stall (motor stall protection)	Controller & Motor	Stop using the device for 6 minutes , then power off and restart the equipment to see if the fault is recovered. If it cannot be recovered, return it to the factory for maintenance.
12	Communication failure between battery and controller	Battery & controller	Check whether the communication line between the controller and the battery is normal . If it is normal and the fault exists, return to the factory for maintenance.
13	M-brake fault	M-brake	Check the M-brake connecting line or replace the brake handle to see if the fault is recovered. If it is not recovered, return it to the factory for maintenance.
14	E-brake fault	Display/ Throttle	Check if the E-brake is not in the pressed state or replace the E-brake to see if the fault is recovered. If it cannot be recovered, return to the factory for maintenance.
15	M-brake fault	Display/M-brake	Check that the M-brake is not in the pressed state, the brake steel wire is connected correctly or the M-brake lever is replaced to see if the fault is recovered. If it cannot be recovered, return to the factory for maintenance.
EC	Unknown failure		After power off and restart, check whether the fault is cleared. If not, return to the factory for maintenance.

6.7.4 Settings:

You can open the settings menu in order to carry out basic settings by parallely pressing the left and right button quickly.

To enter the menu please press left - right - left - right button on the display.

NOTE: When the Power on PIN is changed the Pin to enter the menu will also change.

In case the PIN has been forgotten you can find the possible PIN combinations in the section PIN check below.

By single pushes on left or right button you can move up or down.

If the small star on the left is indicating the sub menu you would like to enter press left and right button in parallel for 2 seconds to select. The star on the left will turn into an arrow.

Using the left and right button again you can toggle between the values.

To confirm your selection please press left and right button for 2 seconds.

When the settings are done press the right button for 2 seconds to exit the menu.

NOTE:

- These settings can only be carried out when stationary.

1. Changing the units:

1. KM-MPH	Km/h	Using the "left" and "right" buttons you can toggle between "US" (miles/mph) and "EU" (kilometre/kph).
2. Acceleration	0	
3. PIN Check	Y	

2. Acceleration:

In order to adjust the acceleration, you can select between three acceleration levels (0,1 and 2) using the "left" and "right" buttons (2=high acceleration / 0=low acceleration).

0 Low acceleration	1. KM-MPH	Km/h
1 Standard acceleration	2. Acceleration	0
2 Fast acceleration	3. PIN Check	Y

3. PIN Check:

1. KM-MPH	Km/h	Using the "left" and "right" buttons you can activate (Y) or deactivate (N) the PIN check for activating the device as well as when entering the setting menu.
2. Acceleration	0	
3. PIN Check	Y	

NOTE: In case the L – R – L – R Password is not working you can find the 16 possible Password combinations below:

L	L	L	L
L	L	L	R
L	L	R	L
L	L	R	R
L	R	L	L
L	R	L	R
L	R	R	L
L	R	R	R
R	L	L	L
R	L	L	R
R	L	R	L
R	L	R	R
R	R	L	L
R	R	L	R
R	R	R	L
R	R	R	R

4. Software version read out:

Controller SW:
C6517
Display SW:
D651516

If the indicator is next to the PIN check please press the button once again to move to the software version readout screen.

7.0 Battery and charger




7.1 Introduction

The battery delivered with the product must only be used to drive the Empulse F35 from Sunrise Medical. No other components may be connected to it.

This operating manual only describes the use of the above-mentioned battery and corresponds to the state of the art at the time of print.

The manufacturer reserves the right to make changes resulting from further development of the mechanics, software or legal requirements. The manufacturer regards uses including the following as misuse of the battery:

- Use of the battery that contravenes the instructions and recommendations in this operating manual.
- Exceeding the technical limits laid down in this operating manual.
- Technical modifications to the battery.
- Changes to the software of the battery.
- Unauthorised attachments or use of the battery.
- The manufacturer shall not be liable for any damage caused by improper use of the battery.

Word	Definition
 DANGER!	Advice to the user of Potential Risk of serious injury or death if the advice is not followed
 WARNING!	Advice to the user of a risk of injury if the advice is not followed
 CAUTION!	Advice to user that potential damage to equipment may occur if the advice is not followed
NOTE:	General advice or best practice

7.2 Safety instructions for the battery and charger

WARNING!

Read and observe the following safety instructions and precautions before activating the battery and before starting the charging process.

DANGER!

- Failure to comply with the safety precautions and instructions may damage the product or result in electric shock, fire and/or serious injuries.
- The lithium-ion battery contains chemical substances, which may cause hazardous reactions if the safety instructions specified here are disregarded.

CAUTION!

The manufacturer accepts no liability for damage resulting from non-compliance with these instructions.

Safety instructions and precautions on the use of the battery:

DANGER!

- Before using for the first time, the battery should be fully charged.
- The battery must only be used at temperatures between -20 °C and 60 °C.
- The battery must not be exposed to heat (e.g. radiators) or fire. External heat exposure can lead to the battery exploding.
- In the (unlikely) event of the battery overheating or catching on fire, you must ensure that the battery does not come into contact with water or other liquids. The only suitable extinguishing agent that is recommended by the cell manufacturers is sand.
- If possible, charge the battery after every use.
- The battery must not be opened or taken apart. Improper opening or wilful destruction of the battery involves the danger of serious injury. In addition, opening the battery voids any warranty claim.
- Never connect the battery contacts in the charging socket to metallic objects, or ensure that the contacts never come into contact with metallic objects (for example with metal filings).
- If the charging socket is dirty, clean it with a clean and dry cloth.
- Never immerse the battery in water.
- The useful life of the battery depends, among other things, on its storage location. Consequently, never leave the battery in hot locations for prolonged periods. In particular, use the boot of a car parked in the sun only for transport rather than as a storage location.

- The battery must not be subjected to mechanical impact. However, if this should happen, the battery must be checked by the manufacturer. Contact your servicing agent. You must not continue to use a damaged battery.
- If damaged or defective, the battery must be singled out and checked. Please contact your specialist dealer and discuss with them the next steps with regard to return and repair. The defective/damaged battery must not be used again or opened.
- Always ensure that the battery is kept clean and dry.
- Charge battery on a fire-and-heat-resistant surface. Do not place easily flammable or flammable objects close to the battery.
- Mishandling can lead to overheating, fire or explosions.

Safety instructions and precautions on how to store the battery:

WARNING!

- Protect the battery immediately upon separating from the battery charger or motor. Never allow any moisture or foreign particles (e.g. metal fragments, small nails, filings or other conductive metals) to get into the battery.
- Do not expose the battery to moisture of any kind during storage (water, rainwater, snow, etc.).
- Before storing it, charge the battery and check its charge status every 3 months.
- Store the battery in a dry location where it is safe from damage and unauthorised access.
- To achieve the optimum battery service life, it should be stored at a temperature from 10°C to 25°C and at a humidity of 20% to 75%.
- Battery storing conditions can be found in technical specification section.
- Avoid direct sunlight.
- When the battery is not in use, recharge it at least every 12 weeks to prevent damage.

Safety instructions and precautions on the charging process:

NOTE:

Occasional use of the wheelchair prior to complete charging indication is acceptable if the need is urgent.

WARNING!

- The battery charger is intended for indoor use and is not to be exposed to rain or other sources of moisture.
- Only charge the battery in a space at least twice its volume with sufficient ventilation that there is no hazard due build-up of flammable gas.
- Do not charge the battery in the presence or vicinity of flammable liquids or gases.
- Do not expose the battery to moisture of any kind during charging (water, rainwater, snow, etc.).
- Do not carry out the charging process in rooms where moisture may affect the battery.
- The battery must only be charged at temperatures between 0 °C and 40 °C. If you attempt to carry out a charging process outside of this temperature range, the battery mechanism automatically switches off the charging process.
- Only use the designated charger to charge the battery. Your specialist dealer can provide the relevant information.
- Off-board battery chargers are not to be carried on wheelchairs.
- Only batteries of the specified type and capacity are to be charged, please see Section 9 for battery type.

DANGER!

- Using an unsuitable battery charger can lead to malfunction and result in the battery having a limited service life. There is also a danger of fire and explosion.
- When the charging process is complete, disconnect the charger from the mains socket first before disconnecting it from the battery.
- Ensure adequate air circulation as soon as the battery is charged. In principle, only charge the battery under supervision.
- Damaged batteries must not be recharged or used any further.
- Damaged battery chargers (damage to the plug, housing, cable) must not be used.
- The charger casing will get hot during its normal operation.

Safety information and precautions on how to transport and ship the battery:

WARNING!

- Lithium-ion cells are used in the battery. Transport and shipping of the battery are, therefore, subject to all applicable statutory requirements, which must be strictly observed. For instance, a defective battery must never be transported by plane.
- If your battery is defective, take it personally to your specialist dealer as shipping lithium-ion batteries by post or other carriers is subject to strict rules and regulations. Once again, we recommend that you contact your specialist dealer.
- As transport regulations may change annually, we strongly recommend that you consult your travel operator, airline or shipping line before you set out on your trip in order to learn about the current applicable regulations. A defective battery must not be taken on a plane or put in your luggage.

NOTE:

- If your battery is fitted to the pull device when being transported, transport regulations apply in accordance with UN3481.
- Make sure you keep the packaging container of the battery in case you need to transport it.
- Discuss transportation with your specialist dealer prior to shipping.

Safety information and precautions on the charger:

WARNING!

- Before starting the charging process, read and follow all instructions and precautions enclosed with the charger and the following precautions and safety information.
- Only use the designated charger to charge the battery. Your specialist dealer can provide the relevant information.
- When the charging process is complete, we recommend disconnecting the charger from the mains socket first before disconnecting it from the battery.
- Do not expose the charger to moisture of any kind during charging (water, rain water, snow, etc.).
- Do not carry out the charging process in rooms where moisture may affect the charger.
- Be aware of condensation. If the charger is brought from a cold room into a warm room, condensation may form. In this case, refrain from using the charger until all condensation has dissipated. Please note that this may take several hours.
- Never carry the charger by its power cable or the charger cable.
- Never tug at the power cable to disconnect the charger from the mains socket.

- Never subject cable and plug to any pressure. Overstretching or bending the cable, pinching a cable between a wall and a window frame or placing heavy objects on a cable or a plug may result in electric shock or fire.
- Lay the power cable and the attached charging cable so that nobody can step on it or trip over it and so both cables are protected against any other harmful effects or stress.
- Do not operate the charger if the power cable, the charging cable or the plugs attached to the cables are damaged. Damaged parts must be replaced immediately by the authorised specialist dealer.
- Do not use or disassemble the charger when it has received a hard blow or was dropped or damaged in another way.
- The charger must not be used by children.
- Never attempt to disassemble or modify the charger.
- Do not cover the charger during the charging process or place any objects on top of the device.
- Never connect the terminals of the charging plug with any metal objects.
- Ensure that the plug is firmly inserted in the socket.
- Never touch plugs with wet hands.
- Do not use the plug of the charger and/or the mains plug if they are wet or dirty. Before inserting it, clean the plug using a dry cloth.

7.3. Notes for transportation in aeroplanes

Shipping lithium-ion batteries or taking them with you on aeroplanes is strictly regulated. The guidelines may vary depending on the airline. In all cases, contact your airline or carrier, before you transport or want to send a device on an aeroplane which operates on lithium-ion batteries.

WARNING!

- The battery of the Empulse F35 contains lithium-ion cells. For shipping or transportation, you must comply with the relevant legal guidelines.
- The guidelines for shipping lithium-ion batteries or transportation in an aeroplane may change. It is essential that you contact your airline or travel operator in order to obtain information about the current guidelines before you start a trip or plan shipping.
- Defective batteries cannot be transported in an aeroplane under any circumstances.
- If your battery is defective, please contact your dealer to find out how to proceed. In this case, special conditions apply for transporting hazardous products.
- In all cases switch the battery off for transportation and protect the contacts on the top of the battery against short circuiting.

7.4. Switching the battery off for transportation in a passenger aeroplane

WARNING!

Make sure the device is switched off before removing the fuse.

For transporting the F35 with inbuilt battery in an aero plane, remove the rubber piece (FUSE) from the battery housing.



Then Remove the Fuse from the battery.



To add the fuse again please follow the removing instructions in reverse order.

WARNING!

When adding the fuse back again sparks could appear.

NOTE:

- Always switch the F35 off when not being used.

7.5. Waking up the Battery

After 7 days of not using the F35 the battery will go into storage mode to save energy and protect the battery from self-discharge.

To wake up the battery from storage mode please press the On button on the left side of the tube then charge the battery to 100%.



7.6 Charging the battery

Fully charge the battery before its first use. The battery can be charged at any capacity without adversely impacting its service life. The battery achieves its maximum service life when it is charged at an ambient temperature of between +10 °C and +25 °C.

- To charge, connect the battery to the charger delivered with the product. Remove the rubber bungs from the charging socket of the battery, then plug the charging plug into the charging socket.
- Now plug the main plug of the charger into a socket
- When charging, the colour of the LED on the charger will change from green to red. During the charging process, the LED on the charger will be illuminated in red.
- When the battery is fully charged, the LED on the charger will change to green.

NOTE:

- Before inserting the plug in the socket, ensure that both parts are clean and there are no metallic particles on them. If you detect such particles, use a dry and clean cloth to remove them.
- During the charging process, the pull device cannot be used.

⚠ WARNING!

- The charging process ends automatically as soon as the battery is fully charged. This avoids overcharging.
- Do not leave the batteries/battery pack unattended while charging.
- Do not leave the charger connected to the mains socket any longer than necessary.
- When the charging process is complete, disconnect the charger from the main socket first before disconnecting it from the battery.
- Before using the device, always check the charge status of the battery.
- The battery should be fully charged prior to use in order to provide motorised support at all times.
- The battery may only be charged in a dry room at temperatures between 0° and 40° C.
- We recommend charging the battery fully before longer periods of storage, eg, before a winter break and re-charge regularly (approx. every 12 weeks).

7.7 Battery warranty:

Battery warranties are subject to periods set by the manufacturers. However, most of these warranties are subject to a wear and tear clause, and if you genuinely wear out your batteries in 12 months, it will not be possible to obtain a replacement under warranty.

7.8 Trouble shooting

- Battery is not charging - red LED not illuminating.
 - Please check the connection from the charger to the main socket.
 - Please check the connection from the charger to the battery.
 - Please ensure that the battery is charged within the specified environment temperature range.

8.0 Maintenance and troubleshooting

The pull device is equipped with an 6,5" drive wheel.

8.1 Fitting and repairing the tyre:

- The Empulse F35 is equipped with a special tyre which required special tools to replace.

If the tyre is worn, please contact your dealer to send the device back to Sunrise Medical for tyre replacement.

DANGER!

- Make sure you use the right torque for the wheel nuts on the left and right of the fork (40 Nm).

8.2 Regular maintenance

Your pull device is subject to high levels of stress when being used, and requires regular checks in order to guarantee your safety.

DANGER!

Carry out the visual inspections/maintenance as described below regularly, at least every 4 weeks, and ideally before you set off each time:

- Make sure that all screws and fasteners are secure.
- Functional and safety check of all lights (if fitted).
- Functional/safety check of the docking system (pull device and wheelchair) to make sure they are secure and check for wear.
- Check the brake pads for wear and that the brakes work properly. The disk brake must be re-adjusted/ maintained regularly by a dealer.
- Check function of the disk brake (get your dealer to replace cables and brake pads if needed).
- Visual inspection of the fork and intermediate sub-frame for damage (e.g. cracks, corrosion, deformation etc.).
- Visual inspection of the wheelchair frame and back tubes for damage (e.g. cracks, deformation, etc.).
- Check tyres (tread, cracks, damages) and replace if needed.
- Check the spoke tension and the rim and hub of all wheels (wheelchair wheels as well) for damage.
- Check all cable and electrical connectors.
- Check that the steering head and handlebar are secure.

8.3 Electrical system

If fault codes arise, or the electrical system of the pull device does not function as intended:

- Contact your dealer.
- Switch the pull device on and push it forwards 1 m by hand – check that it is working again
- Check all freely-accessible plug connections for dirt or moisture. Clean the contacts if necessary with a clean, dry cloth. Use contact spray if necessary, but do not use lubricating or penetrating oil to clean the contacts under any circumstances.

9.0 Technical Specifications

General data	
Operating Voltage	36 Volt
Range of action	up to 15 km*
Max. Speed options	6 kph; optional 10/15 kph (speed can be regulated in 3 levels)
Climbing power (nominal)	up to 11% (6°)
Flammability standards	Tested according applicable parts of EN12184
Max. Load	110 kg
Total weight (incl. battery and subframe)	From 9 kg (transport weight 7,5Kg)
Max. dimensions	920mm x 584mm x 610mm (height x width x depth). The total dimensions of a wheelchair/ pull-device combination can exceed the dimensions of the wheelchair used by 765mm (in length) and 130mm (in width).
Protection Rating	IPX4

Motor data	
Wheel size	6,5"
Rated voltage	36 Volt
Power	250 W (Nominal)
Maximum torque	15 Nm
Motor noise	max. 65 +/-5 dbA in 1 m gap
Warranty	2 years

Battery data	
Dimensions	Length: 364.5mm +/- 2mm Diameter: 53mm +/- 1mm
Battery type	Lithium-ion, 21700
Rated voltage	36 Volt
Capacity	4 Ah
electrical power	144 Wh
Discharge current	15A (continuous)
Charging time	2h (approx. at 2.0 A charging current)
Charging temperature range	0 - 40°C
Operating temperature	-20° to 60°
Storage temperature range	-10° to 45°C (up to 1 month) / -10° to 35°C (up to 3 month)
Charging cycles	1000 (70% remaining capacity after 350 cycles of normal use)
Warranty	1 year
Functions	Wake up switch from storage mode
USB port	USB A - 1,5A Max. Charging Current

Battery Charger	
Type	Off-Board Charger CPF080L1002 (CPF081020)
Plug	DC Hole Plug, Center Pin +V, Outer Sleeve -GND
Compatible batteries	Only applicable for Lithium-Ion batteries. Only use batteries intended for this product.
Input	100-240V AC
End-of-charge voltage	42 Volt
Charging current	2.0 A
Protection Rating	IPX1

9.0 Technical Specifications (continued)

Controller	
Rated voltage	36 Volt
Max. current	15 A

Display	
Displays	Charge Level of Battery Drive level Odometer Current speed in kph/ mph Error Codes Acceleration mode Light indication Cruise Control Indication
Function	Selection of drive levels (1, 2, 3, R), Acceleration mode, Light On/Off switch

* According to ISO 7176-4

10.0 Notes on storage

Battery:

- Protect the battery immediately upon separating from the battery charger or motor. Never allow any moisture or foreign particles (e.g. metal fragments, small nails, filings or other conductive metals) to get into the battery.
- Avoid storage in humid areas to prevent corrosion on the plug contacts.
- Do not expose the battery to moisture of any kind during storage (water, rainwater, snow, etc.).
- Before storing it, charge the battery and check its charge status every 3 months.
- Store the battery in a cool and dry location where it is safe from damage and unauthorised access.
- To achieve the optimum battery service life, it should be stored at a temperature from 10°C to 25°C and at a humidity of 20% to 75%.
- For short term storage (1 week), do not keep your battery in places where the temperature exceeds 50 C or is less than -20 C.
- Avoid direct sunlight.
- When the battery is not in use, recharge it at least every 12 weeks to prevent damage.

Pulling device:

- Store the pull device in a dry place, protected from rain and snow.
- Cover the pull device during long-term storage in order to protect it from dust.
- Do not store the pull device at temperatures above 60 °C or below -20°C.
- If you do not use your pull device for long periods of time, we recommend that you switch your pull device on every 4 weeks and allow the wheel to rotate for approx. 5 minutes at low speed in order to guarantee that the grease that is there is distributed over all bearing positions, this will prevent corrosion of the bearings.
- After a long period of storage, check that the brakes are working and check the condition of the tyres before setting off.

11.0 Cleaning and hygiene

Cleaning:

- The pull device should be cleaned regularly and after each bigger journey with commercially available, household cleaning agents and a little water.
- The display, battery and all other electronic components may only be cleaned by wiping with a damp (not wet) cloth.
- The drive wheel can be cleaned with a soft sponge or a soft brush.
- The clamps and the docking system can be cleaned with water, a soft sponge or a soft brush (recommended after each ride).
- After cleaning please, a penetrating oil (e.g. Ballisto WD 40, Caramba, etc.) can be used to lubricate the moving parts of the docking mechanism.

CAUTION!

- Never use steam or high pressure to clean the device.
- Never use any abrasive cleaning agents or aggressive, acidic cleaners.
- Make sure that water will not get into contact with the electrical connectors.

Hygiene measures when being re-used:

- When the pull device is to be reused, it should be prepared carefully, and be wiped and treated with spray disinfectant on all surfaces which could come into contact with the user. Use a liquid, alcohol based disinfectant which is suitable for medical products and devices. Please pay attention to the manufacturer's instructions of the disinfectant you are using.

12.0 Disposal and recycling

NOTE: If the pull device has been made available to you as part of a charity or medical loans scheme, then it may not belong to you. If it is no longer required, then follow the instructions to return it as given by the organisation that made the pull device available to you.

Electrical and electronic equipment need to be disposed of separately to general household waste at specific state- provided locations. The correct disposal and separate collection of used appliances serves to prevent potential damage to health and the environment. It is a requirement for the re-utilisation and recycling of used electrical and electronic equipment.

Detailed information on the disposal of your used equipment can be obtained from your local authority, your waste disposal service, the specialist dealer from which you purchased the product, or your sales contact.

This information only applies to equipment which is installed and sold in the countries of the European Union and which is subject to the European directive 2002/96/EC. In countries outside of the European Union, deviating conditions apply to the disposal of electrical and electronic waste.

Materials Used:

In the following section, there is a description of the materials used on the pulling device, in view of the disposal or recycling of the pulling device and its packaging. There may also be special local regulations in force with regard to disposal or recycling, these must be taken into account when disposing of your pulling device. (This can include the cleaning or decontamination of the pulling device prior to disposal).

Aluminium: Wheels, parts of the frame, main brake lever, handlebar, docking clamps, fork, sub-frame

Steel: Steering tube, frame, sub-frame

Plastic: Handles, plugs, housing parts and tyres, clamp covers, fender.

Packaging: Made of soft polyethylene, cardboard

Battery: Lithium-Ion battery (hazardous product)

Please see battery section for more detailed information.



13.0 Nameplate

The nameplate is located on the frame. The nameplate indicates the exact model designation and other technical specifications. Please provide the following pieces of information whenever you have to order replacement parts or to file a claim:

SAMPLE

	Sunrise Medical GmbH Kahlbachring 2-4 D-69254 Malsch / Germany	2022-08-22	203223341254205
TYPE: F35	Power Assist		
 110 kg	 max. 6 °	 6 km/h	 36 Volt
		 250 Watt	

UK	RP	Sunrise Medical Limited Thorns Road, Brierley Hill West Midlands, DY5 2LD UNITED KINGDOM
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TYPE:	Product Name/SKU Number.
 max X°	Maximum safe slope, depends on wheelchair/ add-on bike setting, posture and physical capabilities of the user.
 xxx kg	Load Maximum.
	UKCA Mark.
	CE Mark
	Consult instructions for use.
 X km/h	Max speed.
 XX Volt	Electrical voltage / V=Volt.
 XXX Watt	Motor performance
	Cells contain lithium
	Must not be disposed of as household waste
	Serial number
	This symbol means Medical Device
	Manufacturer's address.
xxxx-xx-xx	Date of manufacture.
	Importer's address
	UK Responsible Person
	Swiss Representative's address

As we are committed to continually improving the construction of our wheelchairs and add-on bikes, product specifications may vary slightly from the examples illustrated. All weight/dimensions and performance data is approximate and is provided solely for guidance.

All pull devices must be used in accordance with the manufacturer's guidelines.

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ISO 7010-M002
Instruction manual/booklet must be read! (Blue Icon)



Not crash tested label







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OM_Empulse F35_EU_EN_
Rev.B_2025-10-16