







The REAL 6100 PLUS is a Class I medical device. It is CE marked in accordance with the Swedish Medical Products Agency's code of statutes for medical devices, LVFS 2003:11, and has been tested and approved in accordance with EN 12184, Class A. All textiles used for the chair have been tested and approved in accordance with EN 1021-1 and EN 1021-2. Mercado Medic AB is certified to both ISO 9001 and 14001 and complies with applicable labour and environmental legislation.

If you have any questions about your product or if something unexpected has happened, please contact your dealer first, otherwise you are welcome to contact us at Mercado Medic AB.

PDF versions of our instructions for use and care with magnification options can be found on our website: www.mercado.se. Information is also provided on the website about accessories that can be installed on Mercado Medic's chairs, as well as any field safety notices, prescribing support or recalls of products and accessories.

We reserve the right to make changes to this manual and its contents.

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# **1. Important information**

The REAL 6100 PLUS has exchangeable components, accessories and functions with setting options for individual adaptation. The chair must only be used by the person for whom, and for the purpose for which, it is intended.

The chair is intended for indoor use only and must not be used outdoors. The chair must not be exposed to extreme cold or heat, prolonged sunlight or other radiation. The chair must not be exposed to water, other fluids or chemicals.

Warning! Metal surfaces may become very hot if they are exposed to direct sunlight. The chair must not be equipped with any accessories or components other than those approved by Mercado Medic AB. Repairs and other technical measures may only be carried out by personnel authorised by Mercado Medic AB.

- The REAL 6100 PLUS is a Class A product and is intended for indoor use only.
- Max. user weight: 135 kg. When adapting the product for heavier users, please contact Mercado Medic AB.
- Driving programs must be adapted for the user so that the chair can be operated in a safe manner with regard to the user and the user's surroundings. Adaptation of driving programs may only be carried out by trained prescribers and technicians. Programming is done using appropriate software. Please refer to the section on 'Programming the control unit'.
- The REAL 6100 PLUS must not be equipped with any accessories or components other than those approved by Mercado Medic AB.
- Warranty period two (2) years unless otherwise agreed. For warranty cases, please contact Mercado Medic AB.
- Max. service life ten (10) years.
- Repairs and other technical measures may only be carried out by personnel authorised by Mercado Medic AB.
- Chairs with adjustable seat tilt must be in a fixed position when transferring to or from the chair.

- The REAL 6100 PLUS must not be driven when the seat height is in the raised position. If the seat is raised, the obstacle-climbing capability may be reduced as the chair runs more slowly and less power reach the drive wheels. To climb obstacles safely, drive the chair at the lowest possible seat height.
- The REAL 6100 PLUS comes with backrest, seat and leg support as standard.
- The chair is approved for all types of transport. In all cases the automatic fuse must be switched off during transport.
- If the REAL 6100 PLUS is equipped with leg support, the user's feet must remain on the footplate when using the electrical functions.
- Be careful when lifting the battery pack as it is heavy and can cause crush injuries if dropped.
- When servicing, always reinstall the battery terminal protective cover. The absence of the protective cover may result in personal injury on the occasion of a later service.
- Do not allow small children to be in the vicinity of the product unsupervised. The cover plug on the front cover poses a choking hazard for small children. Please see Your REAL 6100 PLUS for reference.

# 2. Expected service life

The expected service life of the Product is ten years when used in accordance with the instructions in this manual. The Product's date of manufacture can be found together with the serial number on one of the silver labels on the Product's chassis, marked with Lev/Del and stated in the format YYWW (number of year and week).

As a user of the Product, you should contact your prescriber, technical aids centre or distributor if the Product shows reduced or altered performance.

After the expected service life, it is important to make an overall assessment of the Product before continuing to use it. After the expected service life, Mercado Medic AB cannot guarantee the suitability and safety of the product, as Mercado Medic AB has no control over how the product has been used and wear and tear. The overall assessment of the Product should be carried out by the healthcare organisation if the product is prescribed, and, as a minimum, should take into account how the Product has been used, the condition of the Product and its component parts, whether the Product has been reconditioned and been serviced, when this occurred, what actions have been taken on these occasions and the reason for the actions.

In markets outside Sweden and Norway where a distributor has sold the Product directly to the user (where applicable), and therefore there is no responsible prescriber, periodic maintenance must be carried out according to instructions in the section Reconditioning and Service in addition to the overall assessment above.

After the expected service life, Mercado Medic AB cannot guarantee the provision of spare parts. CE marking is not affected by expected service life.

# 3. Symbols on the product

All symbols that may be found on the product are illustrated and explained in the list below.



1. Follow the instructions for use



2. Separation of source materials



3. The product is part of a recycling process



4. Maximum user weight



5. Manufacturer



6. Risk of crush injury. All risks are indicated

# 4. Before use

- All knobs and locking levers must be tightened on the chair before use. If play or other deviations are detected, report this to the responsible technical aids centre.
- The leg support must not be adjusted so that it is in contact with the floor or other.
- If the REAL 6100 PLUS is equipped with, for example, a belt or similar, this must not hang loosely on the chair.
- Fold up the armrests. See section 8.1.

# 4.1. Inspecting the control unit

- Turn on the main switch.
- The battery level indicator should not be down to the red mark.
- The display must not indicate error (see 'Troubleshooting, control unit' for details of how to handle error signals).
- ! Do not operate the chair with the backrest, footplate and/or armrests removed.

- Fold down the footplate, 8.2 & 8.3.
- Install the backrest support post. See section 8.7.
- Switch on the automatic fuse. See section 7, item 6.
- If the chair is equipped with neck support, insert the neck support mechanism into its bracket on the backrest as illustrated. Then tighten all knobs and locking levers (1).



# 5. Storage, cleaning & maintenance

Service interval: No preventive maintenance is necessary.

Cleaning during use at home: The chair should be wiped clean of dust and dirt once a week with a lightly moistened cloth and a mild detergent.

Store the chair in a dry environment at room temperature. Check the battery charge level before use. If the chair is to be stored for more than one month, the battery fuse should be disconnected. See Replacing the battery. The chair is intended for indoor use and must not be rinsed with water, other fluids or chemicals. The chair can be cleaned/wiped clean with surface disinfectants. We approve the use of detergents with a pH ranging from 7 to a maximum of 12 (concentrated). The chair must not be exposed to extreme heat, prolonged and intense sunlight or other radiation. If the chair has been transported in extreme cold, it must be allowed to reach room temperature before use. The chair should be wiped down and kept clean of dust and dirt.

1. Plush upholstery should be washed using a foam wash.

- 2. Remove any dirt, crumbs and similar. Apply a thin layer of foam and rub the foam evenly with a damp cloth.
- 3. Wipe with a clean and lightly dampened cloth. Vacuum clean when dry.

Artificial leather should be washed using soapy water or alternatively be wiped down with an alcohol solution, e.g disinfectants. Do not use any other cleaning agents.

For functional reasons, seats, backrests and other padded parts are not made from impermeable materials. Padded parts should be replaced during reconditioning for hygienic reasons.

The electric lifting mechanism should be checked regularly for dust, dirt and stability: Raise the seat to its highest position. Clean with a cloth. Do not use any water or solvents. Then lubricate the cylinder by applying a thin layer of Teflon or silicone based grease. Touch-up coating can be done using Mercado's black touch-up paint, article no. 801900.

# 6. Technical information and dimensions

# 6.1. Technical information

Max. user weight	135 kg
Drive wheels	both centre wheels
Driving distance per charge	approx. 15 km*
Weight	76 kg incl. battery
Motors ME803661C Al	lied Motion Stockholm AB
Charging time	approx. 6–8 hours
Chargers tested and approved by Mercado Medic AB	.ECB-401 Easy Buddy 4A
Batteries tested and approved by Mercado Medic AB FGS, F	GG22805, 2 × 12 V 28 Ah

# 6.2. Standard dimensions

Total width	
Length	795 mm
Collapsed height	550 mm
Static stability	+6°/-6°**
Static lateral stability	
Dynamic stability	uphill 10°, downhill 3° ***
Obstacle-climbing ability	
Max. speed	4.5 km/h
Braking distance from max. speed	1.0 m/0.7 m active brake
Seat tilt	15°/+8°, -8°/+15°, 0°/+23°
Seat depth	170–540 mm
Seat width	290–550 mm
Seat height	460–740, 380–580 mm****
Backrest angle	15/+45°
Backrest height	
Leg support length	
Leg support angle	0°/+32°
Armrest height	150–300 mm
Backrest-armrest mech	100–250 mm
Turning space 180°	
Front/rear wheels	Ø 125 mm (article no. 804362)
Drive wheels	Ø 225 mm (article no. 805203)

\* In optimal driving conditions.

\*\*\* On large downward slopes, the chair must be reversed.

\*\* Seat tilt and back tilt settings together with high seat height can affect both static and dynamic stability.

\*\*\*\* Measured from floor to the underside of the seat, with the potential for continuous downward adjustment to a maximum 3 cm.

# 7. Transfers

# 7.1. Transferring to and from the chair

Please note: Always ask your dealer for advice on the most suitable technique for transferring to and from the chair, from the front or the side. What best suits you and your needs and thus carries the least risk of injury.

- ! Transfers to and from the chair must only take place on a flat surface. Position the chair correctly for the transfer and adjust the seat height to the correct position.
- ! Ensure that the control unit is switched off and that the brake is not disengaged at the time of the transfer in order to prevent the chair from moving unexpectedly.

## Transfers from the side

When transferring to the chair from the side, you must aim to ensure that the seat of the chair is positioned somewhat lower than the position you are transferring from. When transferring from the chair you can raise the chair so that you are sitting positioned somewhat higher than the position you are transferring to. Remember to only fold away or lower the armrest of the chair on the side you are transferring over.



# Transfers from the front

When transferring to the chair from the front, you must aim to ensure that the front edge of the seat is no higher than knee level; this is so you can sit well back into the seat without having to make further adjustments. Remember to fold away or lower the footplate so you can get close to the seat. If you are using a lift to transfer to and from the chair, you must bear in mind any crushing risk. Make sure that hands, feet and any items of clothing cannot get in the way and risk injury.



### Ramps

Always drive straight up the ramp from the front, not obliquely.

! Before driving on a ramp, check that it can withstand the combined weight of you and your electric wheelchair. To increase the stability of the chair when driving on a ramp, lower the seat lift and level the seat tilt. When driving down a ramp we recommend always reversing the chair. If the slope exceeds 3 degrees, the chair must be reversed when going downhill.



# 8. Your REAL® 6100 PLUS



- 1. Backrest adjustable in height, angle and depth.
- 2. Armrests adjustable in width and height.
- 3. Control unit (also controls electrical seat functions).
- 4. Seat adjustable in height. Seat tilt is available as an accessory.
- 5. Warning label with transport information.
- 6. Automatic fuse with On/ Off function. Also used to disconnect the batteries, e.g. when the chair is to be transported by air.
- 7. Label with unique serial number.
- 8. Cover plug on front cover (see risk description under Important information).
- 9. Drive wheels, puncture-proof.
- 10. Footplate adjustable in height and angle.
- 11. Castors with individual wheel suspension.

# 9. Setup & use

# 9.1. Armrests

The user can adjust the height and width of the armrests. If the chair has foldable armrests, these can also be folded backwards.



Foldable armrest

Armrest

9.2. Installing the backrest

Insert the backrest support post (1) into the backrest mechanism (2) while pushing in the button clip (3). Adjust to the appropriate height (see Backrest mechanisms for instructions on how to adjust the backrest). Lock the backrest support post using the knob (4). Dismantling is carried out in the reverse order.

# 9.3. Backrest mechanisms:

# Controls

- 1. Height. To adjust the height of an armrest, loosen the knob (1). Pull/press the armrest to the desired height. Then tighten the knob.
- 2. Width. To adjust the width, loosen the locking mechanism, knob or screw\* (2). Pull/press the armrest to the desired width. Then tighten the locking mechanism.
- 3. Folding. To fold the armrest, pull out the pin and turn through 90° (3). This releases the fold function. Then fold the armrest backwards.
- \* Allen key for locking screws included with your chair.
- ! Remember to turn the pin back again after folding up the armrest to ensure that the fold function is locked.



# Adjust the backrest so that the user's calf is at a distance of about 2–3 cm from the front edge of the seat while in a sitting position. This is to promote blood circulation while maintaining a stable sitting position when operating the chair.

There are four types of backrest mechanisms: Standard, Medic, Comfort and EL. All are available in a low and high design (illustrated chairs all have low backrests). All backrest mechanisms have separate settings for height, depth and angle. The Medic model has extended depth adjustment.

- The Standard backrest mechanism can be adjusted in height, depth and angle and is available with both high and low backrests.
- In addition to height, depth and angle adjustments, the Medic backrest mechanism (option) has an extended depth adjustment option.
- The Comfort backrest mechanism (option) looks and works like a Medic backrest mechanism without depth adjustment, with angle adjustment of the backrest mechanism done using the handle on the gas spring.
- The EL backrest mechanism can be adjusted in height, depth and angle and is available with both high and low backrests. The mechanism can be set in two different angle adjustment ranges.

# Backrest mechanisms, cont.

# Standard 1 2



Medic



## **Controls, Standard**

- Height. To adjust the height of the backrest, loosen the knob (1). Press or pull the backrest to the desired height.
- 2. Backrest mechanism angle. To adjust the angle of the backrest mechanism, loosen the lever (2). Then place the back mechanism at the desired angle and tighten the lever.
- 3. Backrest angle. To adjust the angle of the backrest, loosen the lever (3). Then place the backrest at the desired angle and tighten the lever.

#### **Controls, Medic**

- Height. To adjust the height of the backrest, loosen the knob (1). Press or pull the backrest to the desired height. Then tighten the knob.
- Backrest mechanism angle. To adjust the angle of the backrest mechanism, loosen the knob (2). Then place the backrest mechanism at the desired angle and tighten the knob.
- Backrest angle. To adjust the angle of the backrest, loosen the lever (3). Then place the backrest at the desired angle and tighten the lever.
- 4. Depth. Loosen the knob (4) to adjust the depth of the backrest mechanism. Then pull or push the backrest mechanism to the desired depth. Then tighten the knob.
- 5. Button clip. When adjusting the depth of the backrest mechanism, ensure that the button clip locks and that the backrest mechanism cannot be pulled out.

### Controls, Comfort

- Height. To adjust the height of the backrest, loosen the knob (1). Press or pull the backrest to the desired height. Then tighten the knob.
- 2. Backrest mechanism angle. To adjust the angle of the backrest mechanism, use the handle on the gas spring (2). Then place the backrest mechanism at the desired angle and release the handle.
- 3. Backrest angle. To adjust the angle of the backrest, loosen the lever (3). Then place the backrest at the desired angle and tighten the lever.

# Backrest mechanisms, cont.



## Controls, EL

- Height. To adjust the height of the backrest, loosen the knob (1). Press or pull the backrest to the desired height.
- 2. Backrest angle. To adjust the angle of the backrest, loosen the lever (3). Then place the backrest at the desired angle and tighten the lever.
- 3. Backrest mechanism angle. The angle of the backrest mechanism is adjusted using the control unit. Please see the section on Control units.

# 9.4. Transport services

When transporting the REAL 6100 PLUS by transport services or equivalent, the user must transfer to the vehicle seat. When using transport services, the chair must be equipped with transport loops and must be secured using the straps of the transport vehicle. Also switch off the automatic fuse by pressing OFF. If the fuse has tripped, it must be reset by pressing ON. The control unit must be restarted two (2) times in order to restore the chair's functions. Transport loops (accessories) can be ordered using article number TR1010.



#### ! The chair is not approved for sitting in during transport.

# 9.5. Seat tilt

There are three types of seat tilt: Gas spring, crankoperated and electric tilt. The gas spring control is located under one of the armrests (1) or under the right rear edge of the seat (2) and is adjusted by carefully moving the lever forward. The crankoperated seat tilt is operated by a crank (3). The range of the seat tilt can be limited using the nuts (4). The electric seat tilt (5) is adjusted using the control unit. See section Control unit.

### Controls

- 1. Gas spring under armrest.
- 2. Gas spring under seat.
- 3. Crank-operated under seat.
- 4. Nuts on crank-operated tilt.
- 5. Electric see section Control unit.



# 9.6. Reversed tilt or Backward seat tilt only (option)

### Controls

- 1. Armrests placed here follow the seat tilt.
- 2. Armrests placed here do not follow the seat tilt.
- 3. There are 3 positions. If using position 3, the chair must be equipped with base extenders.
  - 3.1. Forward 15°, backward 8° Standard seat tilt
  - 3.2. Forward 8°, backward 15° Reversed seat tilt
  - 3.3. Forward 0°, backward 23° Backward seat tilt only

# 9.7. Leg support





### **Controls, Centre-mounted**

- 1. Height. To adjust the height of the footplate, loosen the knob (1). Then pull or push the footplate to the desired height\*.
- Leg support angle. The angle of the leg support can be adjusted to four different positions. To adjust the angle, unscrew the screw (2) using a 5 mm Allen key. Set the desired angle and screw the screw back in.
- 3. Footplate angle. To adjust the angle of the footplate, adjust the screw (3) using a 5 mm Allen key. To lower, turn the screw clockwise. To raise, turn the screw anticlockwise.

# **Controls, Cross**

- 1. Height. To adjust the height of the footplate, loosen the knob (1). Then raise or lower the footplate to the desired height so that you can thread the screw through and tighten the wing nut on the back\*.
- Footplate angle. To adjust the angle of the footplate, loosen the screws (2) slightly. Use a 5 mm Allen key. Angle to the desired position and then tighten the screws.

\* Make sure that you properly insert the knob into one of the holes in the footplate tube. This is to ensure that the footplate does not come loose.

! Crush hazard for feet between footplate and floor. The feet must be kept on the footplate while operating the chair.

# 9.8. Adjusting the position of the control unit

The control unit can be adjusted in depth and width. To adjust the depth, remove the screw (1) using a 5 mm Allen key and a 10 mm ring spanner. Move the control arm to the desired position (three possible) and then refit the screw. The control unit can be moved to both the inside and the outside of the armrest.

The control arm is articulated at two points, allowing horizontal lateral movement of the control unit without using tools. Move the control unit to the desired position. The control unit can be placed on the right (standard) or left armrest.

# With parallelogram

The magnetic attachment allows for easy adjustment parallel to the armrest. Adjust the position with the screw (1), then lock the screw. Move the control unit to the desired position and release.

# 9.9. Disengaging the brake



Disengaging the brake allows the user to move the chair manually. To disengage, pull the control towards you (1), downwards in the illustration on the right. To re-engage the brake, push the control back to its original position. If the chair is disengaged while turned on, the control unit will display an alarm and it will not be possible to operate the chair. Re-engaging the brake will cause the alarm to disappear and it will be possible to operate the chair again.

! The chair must never be transported in vehicles with the brake disengaged.

# 9.10. Programming unit

Adaptation of driving programs may only be carried out by trained prescribers and technicians.

### Selection of programmable functions:

- Forward speed
- Forward acceleration
- Forward braking distance
- Reverse speed
- Reverse acceleration
- Reverse braking distance

- Turning speed
- Turning acceleration
- Turning deceleration
- Joystick sensitivity
- Use of external joystick
- Reversed joystick function

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! Driving programs must be adapted for the user so that the chair can be operated in a safe manner with regard to the user and the user's surroundings.







# 9.11. Control unit LiNX REM211

# **Operation: Driving**

Turn on the power button (1). Check the battery level indicator (7). The battery level indicator should have at least 2 bars lit. If only 1 red mark is lit the chair must be charged (see 'Charging'). Check to ensure that the control unit is not indicating error by the power button flashing red (1).

Driving: check to ensure that the display (9) is showing a green tyre on the chair symbol and that the desired driving program (10) has been selected by pressing the driving program buttons (2). It is also possible to adjust the selected drive program using the control knob (4).

The chair is operated by moving the joystick (6) in the direction you wish to move: straight forward for forward movement and obliquely left/right/forward to turn. The chair can be rotated by moving the joystick (6) straight to the left/ right.

To brake, release the joystick (6) so that it comes to rest in the neutral position (centre), or turn the joystick in the opposite direction of the direction of travel for faster braking. Remember that the braking distance is affected by the slope of the surface underneath the chair.

Downhill = longer braking distance

Uphill = shorter braking distance

To reverse, pull the joystick (6) backwards.

Horn: press button (5).

# **Emergency stop**

If, when driving or using electrical functions, it is necessary to use the emergency stop, it is recommended to use the power button (1) to perform the emergency stop.

This stops the driving/electrical function quickly.

# **Operation: Seat unit**

For raising/lowering the seat unit or the electric seat tilt/backrest angle or leg support angle. Navigate up/ down the option buttons (3) to view the electrical functions available on the chair. These can be seen on the display (9) (one function at a time). Move the joystick forward/backward to operate the selected electrical function. It is also possible to use the joystick when changing the active electrical function by moving the joystick sideways.

> Adjusting the seat height: move the joystick (6) forward to raise the seat height and downwards to lower it.

> Adjusting the seat tilt: move the joystick (6) forward to tilt the seat forward and downwards to tilt it backwards.

Adjusting the backrest angle: move the joystick (6) forward to tilt the backrest forward and downwards to tilt it backwards.

# Locking\* the LiNX REM211 control unit

When the control unit is switched on, hold down the power button (1) for 4 seconds. The red, amber and green LEDs will flash three times on the display (7) before the control unit is switched off.

# Unlocking\* the LiNX REM211 control unit

Press the power button (1) and wait until LEDs 1 = red, 3 = amber and 5 = green flash on the display. Press the horn (5) twice within 10 seconds. The control unit is activated.

When the chair's electrical function has not been used for approx. five minutes it will shut down automatically to save battery power. Press any button to start up the electronics. The time interval for automatic shutdown is adjustable.

\* works only if the function has been activated in the program.



Control unit LiNX REM211

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# 9.12. LiNX keypad

The LiNX keypad provides direct access to the electrical functions of the seat unit without exiting the drive program in the control unit.

The keypad is located between the control unit and the armrest as standard.

# 9.13. Control unit LiNX REM400

# **Operation: Driving**

Turn on the main switch (1). Check the battery level indicator (6) at the top of the display. The battery level indicator should display at least amber. If only the red mark is lit, the chair must be charged (see 'Charging'). Check to ensure that the control unit is not indicating error by the main switch flashing red (1).



3

Start menu: When the electronics are started, the driving program/

electrical function that was active when the electronics were switched off is always opened. It is important that the joystick is not actuated when starting the electronics. No driving program/electrical function will operate until the joystick is returned to a non-actuated state.

The driving program/electrical function can be selected on the display using the menu selection symbol (8) or the function keys (4)(5). Function key 1 (4) alternates between driving programs and electrical functions; function key 2 (5) navigates between driving programs or electrical functions in the submenu. If the control unit is not touched for 30 seconds, the display is reset to the basic selection menu, with the driving programs in the top row (green) and the electrical functions in the bottom row (orange).

To return to the previous driving program/electrical function, press the 'X' that is displayed on the menu selection symbol (8) or any of the function keys (4)(5), or click on the desired new selection in the basic menu or activate the selected program by moving the joystick up/down, right/left.

Driving: Select the desired driving program using the menu selection symbol (8) or one of the function keys (4) (5). It is also possible to adjust the speed of the selected driving program using the speed control (7).

The chair is operated by moving the joystick (3) in the direction you wish to move: straight ahead for forward movement and obliquely left/rightahead to turn. The chair can be rotated by moving the joystick (3) straight to the left/right.

- 1. Backrest tilt
- 2. Seat height
- 3. Electric leg support, Left
- 4. Electric leg support, Right/ Centre-mounted
- 5. Seat tilt





Control unit LiNX REM400

# Control Unit LiNX REM400, cont.

To brake, release the joystick (3) so that it comes to rest in the neutral position (centre), or turn the joystick in the opposite direction of the direction of travel for faster braking. Remember that the braking distance is affected by

the slope of the surface underneath the chair.

Downhill = longer braking distance

Uphill = shorter braking distance

To reverse, pull the joystick (3) backwards.

### **Emergency stop**

If, when driving or using electrical functions, it is necessary to use the emergency stop, it is recommended to use the main switch (1) to perform the emergency stop. This stops the driving/electrical function quickly.

Horn: press button (2).

# **Operation: Seat unit**

For raising/lowering the seat unit or the electric seat tilt/backrest angle or leg support angle. Navigate using the menu selection symbol (8) or function key 1 (4) to activate the electrical function. Function key 2 (5) navigates between the different electrical functions. Move the joystick forward/backward to operate the selected electrical function. It is also possible to use the joystick when changing the active electrical function by moving the joystick sideways to the left/right.

Adjusting the seat height: move the joystick (3) forward to raise the seat height and backward to lower it.

Adjusting the seat tilt: move the joystick (3) forward to tilt the seat forward and backwards to tilt it backwards.

Adjusting the backrest angle: move the joystick (3) forward to tilt the backrest forward and backwards to tilt it backwards.

# Locking\* the LiNX REM400 control unit

When the control unit is on, press and hold down the main switch (1) for 4 seconds. The display shows a padlock and all driving programs and electrical functions are locked.

# Unlocking\* the LiNX REM400 control unit

Press the main switch (1) and wait until the padlock symbol appears. Press and hold the padlock symbol within 10 seconds, until the driving program/ electrical function is displayed.

When the control unit has not been used for approx. five minutes it will shut down automatically to save battery power. Press any button to start up the electronics or move the joystick forward/backward. The time interval for automatic shutdown is programmable.







# 9.14. Charging

The EC-Buddy is equipped with protection against the following:

- Incorrect polarity
- Short-circuiting of battery cables
- Formation of sparks in grid and battery
- Overheating

The charger should not be exposed to direct sunlight. The charger must not, fully or partially, be immersed in water or covered with snow. Cables and connectors may only be replaced by the manufacturer or an authorised service centre.

The charger complies with the following standards: EN 60601-1, EN 60601-1-2, EN 12184, ISO 7176-14. The combination of chair and charger also complies with ISO 7176-21.

Maintenance-charging of the chair should be carried out monthly or continuously:

- 1. Connect the charger power cord (3) to the wall outlet.
- Connect the charging connector (1) to the charging jack (2) (marked with a battery symbol). The power cord and charging connector can be connected in any order.

Indication	Meaning/Cause	Action
Steady light	Plugged in	
Flashing	Battery charging	
Steady light	Battery fully charged	
Steady light	Incorrect polarity to battery	Contact Service
Flashing	Battery fault	Contact Service

- 3. The green LED (4) flashes during charging. The charger becomes warm during charging. This is perfectly normal. There is protection against overheating.
- 4. The green LED (4) will light up when the battery is ready for use, which takes at least six hours, regardless of initial battery capacity. As the charger uses little power and will not overcharge the battery, it could well be left connected until the vehicle is to be used.
- 5. Disconnect the charging connector from the charging jack (2) when the vehicle is to be used.
- 6. Disconnect the power cord (3), if desired.
- ! Warning:
  - Batteries emit explosive gases when charging. Avoid flames and sparks.
  - The charger is designed only for lead batteries with 12 cells (24V).
  - The charger is equipped with protection against overheating but becomes warm during charging.
  - Charging must be carried out in a wellventilated area.
  - Medical electrical equipment requires special precautions and must meet the requirements of ISO 7176-21, where the charger and chair are tested together according to EMC. The tests pursuant to this standard check that our product, the chair incl. charger, cannot disrupt or be affected by portable or mobile RF communication equipment.
  - Cables and connectors may only be replaced by the manufacturer or an authorised service centre.
  - Excessive heat build-up in any connector is a sign of wear or damage. Both the female and male connectors should be replaced in such



# Charging, cont.

#### **Care & supervision**

- Before each charge, check that cables and connectors are not damaged or worn. If this is the case, the charger must be replaced immediately.
- To ensure optimal performance, economy and service life of the charger and battery, and maximum driving distance per charge, the following guidelines should be followed:
- Keep the charger, connectors and batteries free of dirt, dust and oxide.

- Turn off the vehicle when it is not in use.
- Charge the battery daily, or as soon as it is depleted.
- Allow the charger to perform maintenancecharging of the battery when the vehicle is to be stored for a long time\*.
- Clean the charger as required using a slightly damp cloth.

### Connection diagram for charging jack



\* As the charger uses little power and will not overcharge the battery, it could well be left connected until the vehicle is to be used.

# 9.15. Sealed lead/acid batteries, recommendations

### Charging/discharging

- Charge for 12 hours before first use.
- Then charge after each discharge, even if the battery has not been fully discharged.
- Never place a fully discharged battery away for storage.
- A fully discharged battery must be charged for at least 16 hours.
- If the battery has been charged for less than 16 hours on more than three occasions, the battery must be charged once for 24 hours in order to compensate for poor charging.
- The ambient temperature when charging must be between 10°C and 30°C.

#### **High ambient temperatures**

The battery should not be charged if the ambient temperature exceeds 30°C. The charger is set to a charging voltage valid at 20°C.

#### Low ambient temperatures

Charging at temperatures below 10°C is not recommended. The available capacity decreases at low temperatures.

### Deep discharge

Try to avoid deep discharges. If the battery is completely discharged, it must be charged as soon as possible and for at least 24 hours.

#### Long-term storage

Disconnect the batteries if the chair is not to be used for a long time. This is done using the Automatic fuse. Press Off to disconnect the batteries. If the chair is to be left unused for more than 4 months, a maintenance charge must be performed to uphold battery capacity. See the section on Charging. The automatic fuse must be switched on before charging.

When the chair is to be used again, the automatic fuse must be switched on again. Press On. Also make sure to charge the chair before use.

# ! Remember the following when handling batteries:

- Never short-circuit the battery.
- Do not subject the battery to strong shocks.
- The battery should be replaced after three (3) years to reduce the risk of leakage.
- In the event of contact with battery acid, rinse with water for approx. 15 mins and seek medical advice.
- Used batteries must always be discarded at recycling centres.

# **10.** Reconditioning & Service

# **10.1. Indication of malfunction**

Each fault of the LiNX will be indicated by flashes on the control unit indicator light at the On/Off switch. These come in groups of 1–7 flashes at an interval of 2 seconds. The number of flashes indicates the fault that has occurred.

The electric wheelchair will stop automatically in the event of any serious faults that affect driving safety. Less serious faults will only be indicated by the indicator light and it will be possible to continue driving the electric wheelchair.

For some faults, the electronics are reset once the fault has been corrected, and the indicator then once again shows a steady light. Other faults may be connected, which means that the electric wheelchair must be turned off for at least 2 seconds and then switched on again to reset the fault.

For less serious faults, the electronics may switch to the backup driving mode. This means that it will still be possible to drive the electric wheelchair, but all speed variables will be lowered.

# 10.2. Error codes & actions, control unit

# 1 Flash – Control unit error

The control unit is not properly connected or defective. Check the control unit cables.

# 2 Flashes – Network/Config. error

Check all cables. Check Bluetooth connectivity if active. Check the charger and charge the chair's batteries. Reprogramme the system. If there is a signal following a hardware update, software updates are required.

# 3 Flashes – left (M1) motor

This means that there is a break or short-circuit on the lead from the electronic module's M1 connector to the motor, or fault with the motor. Check by unplugging the M1 connection and measuring the resistance between the two outer pins (1 and 4) in order to detect any break or short-circuit.

# 4 Flashes – right (M2) motor

See 3 Flashes, but for the M2 connector.

# 5 Flashes – left (M1) parking brake

This means that there is a break or short-circuit on the lead from the electronic module's M1 connector to the parking brake, or fault with the parking brake. Check by unplugging the M1 connection and measuring the resistance between the two inner pins (2 and 3) in order to detect any break or short-circuit. Also check that the parking brake disengage control properly resets the brakes when the lever is moved into driving mode.

# 6 Flashes – right (M2) parking brake

See 5 Flashes, but for the M2 connector.

# 7 Flashes – LiNX Module error

Not control unit. Check the connected modules and their cables. Charge the chair's batteries. If the chair has become stuck on an uneven surface, ensure that the surface underneath the chair is even and then restart the control system. If the error persists, the electronics module may need to be replaced.

# 10.3. Troubleshooting & actions, REAL 6100 PLUS

Fault	Cause	Action	
Control unit	Control unit broken	Reprogramme/Replace	
Control unit	Cabling broken	Replace	
Control unit	Battery	Replace	
Wheels are not moving	Freewheel mechanism disengaged/out of operation	Check freewheel mechanism	
Wheels are not moving, drive motor silent	Drive motor broken	Replace	
Seat allows a large degree of play in the direction of rotation	Play in actuator (noise)	Refurbish	
Electric lifting mechanism not working	Safety clutch	Adjust brake/Contact Service	
Noise in castors	Bearings unlubricated/worn	Lubricate/Replace	
Worn drive tyres	Old/used up tyres	Replace	

# 10.4. Programming diagram; Standard \_\_\_\_\_

Parameter	Prog. 1	Prog. 2	Prog. 3
Max forward speed	35%	80%	100%
Forward acceleration	65%	75%	100%
Forward deceleration	65%	75%	90%
Max. reverse speed	40%	50%	70%
Reverse acceleration	50%	70%	80%
Reverse deceleration	80%	70%	75%
Max. turning speed	40%	50%	65%
Turning acceleration	60%	75%	65%
Turning deceleration	60%	75%	65%

# **10.5.** Reconditioning instructions: Checkpoints

#### ! Important information:

- The Product does not require periodic maintenance in cases where it has a responsible prescriber in the healthcare sector. In markets outside of Sweden and Norway where a distributor has sold the Product directly to the user (where applicable), and therefore there is no responsible prescriber, periodic maintenance must be carried out every other year during the Product's entire life cycle according to sections 1-12 in this section.
- A thorough visual inspection must be performed of the Product's main components in connection with service and reconditioning in order to ensure the user's safety. This includes the chassis, lifting mechanism, seat frame, back recliner and U-bars for armrests. The check must include welds, lockable functions, cabling and settings.
- If faults or damage are discovered, avoid using the chair until it has been inspected and approved by qualified service personnel.
- The user must not sit in the chair while it is being reconditioned or serviced or during maintenance.
- For safety reasons, before a used chair is prescribed to a new user, the seat frame and the back recliner should be replaced.
- Do not use high pressure washers when cleaning the chair.

#### **1. Electronics unit**

□ 1.1. Electronics/function/cleaning Connect to the LiNX Electronics and check active errors. Save the program and read through the error logs and charging statistics that may provide an indication of the state of the batteries. Check and, where possible, fix any errors loaded in the log.

□ 1.2. Control unit/function/cleaning Check the control unit functions, check that the joystick bellows is intact and that all buttons are working. Wipe the control unit with a cloth lightly dampened with disinfectant; this is to avoid the risk of spreading infection. Do not use solvents, bleach, polishes, synthetic detergents, polishing waxes or sprays on the chair.

□ 1.3. ACT400 – left side under seat frame

Check that all connected functions are working. That the box is firmly attached

□ 1.4. Connectors, attachment

Check that cables and connectors are intact and properly secured. Make sure that cables and connectors cannot be pinched or crushed.

□ 1.5. Batteries/battery charger/ function

Check that the charger is working and that the housing and cables are undamaged. Measure the battery voltage and check that the difference in battery charge level is not too great; this indicates that a battery cell has failed. □ 1.6. Electric seat tilt/function Check that the actuator is not visibly damaged. Check the function of the actuator's moving parts. Ensure that all locking screws are tightened to avoid any play in the end position.

□ 1.7. Electric backrest/function

Check that the actuator is not visibly damaged. Check the function of the actuator's moving parts. Ensure that all locking screws are tightened to avoid any play in the end position.

□ 1.8. Electric leg support/function

Check that the actuator is not visibly damaged. Check the function of the actuator's moving parts. Ensure that all locking screws are tightened to avoid any play in the end position. Check all joints and make sure that the lower clamping bracket is at the correct level to obtain the correct angular range.

#### 2. Electric lifting mechanism

□ 2.1. Noise / sliding clutch

Listen for any abnormal noise in the gearbox bearings, and replace the electric lifting mechanism if a bearing is defective in any way. The electric lifting mechanism can be sent to Mercado Medic AB for repair/reconditioning. Load the chair and check that the electric lifting mechanism does not slip to lowered. Otherwise ensure the correct torque for the sliding clutch.

□ 2.2. Rotation lock / lubrication Check that there is no play in the electric lifting mechanism in the direction of rotation. If there is, replace the electric lifting mechanism. The electric lifting mechanism can be sent to Mercado Medic AB for repair/ reconditioning.

3.3. Attachment/tightening
 Check that the attachments to the seat frame and base are securely tightened.

#### □ 4.4. Cabling/wear

Inspect cables for any signs of wear, pinching or crushing.

#### 3. Chassis

□ 3.1. Welds

Check all welds carefully for signs of cracks, corrosion, movement, etc.

□ 3.2. Bolted joints

Check and tighten all bolted joints. Replace screws that have damaged heads or threads.

#### 4. Drive wheels

□ 4.1. Function/wear

Check that the drive wheels have good tyre treads and that they have not dried out and developed poor friction to the floor.

□ 4.2. Bearings/wheel tracks Check that the drive wheels are rolling properly and that there is no play in the motors' gears.

□ 4.3. Attachments/tightening Remove the drive tyres and check the bolted joints on the motors. If necessary, blow clean away any dust and dirt from the motors.

#### 5. Castors

#### □ 5.1. Function / roll / swivel

Remove hair and dust from the castors and check castors and castor housings for wear and play, which may indicate defective bearings. Check that the castors swivel and the housings rotate as expected. Replace castors if necessary.

□ 5.2. Attachment / tightening

Check that the castors' screws are intact and tightened.

#### 6. Freewheel mechanism

□ 6.1. Function

Check that there is no play in the disengage control and that the magnet activates the reed switch on disconnection. Make sure that the motors roll easily when disengaged.

□ 6.2. Setting/tightening

If the disengage control does not properly re-engage, it will require adjustment.

#### 7. Seat frame

□ 7.1. Mechanics/welds

Thoroughly inspect all welded parts (especially when installing tilt mechanisms, as these parts carry the most load).

7.2. Bolted joints/tightening
 Check and tighten all bolted joints.
 Replace screws that have damaged heads or threads.

□ 7.3. Plastic plugs / guide bushings Make sure that guide bushings and plastic plugs are properly secured, and replace worn or damaged parts.

□ 7.4. Seat/replacement/cleaning

Replace the seat with a new one and wash or replace any covers

 $\Box$  7.5. Operation/lubrication

Make sure that all knobs and levers on the seat frame are working and that they lock correctly.

□ 7.6. Gas spring tilt/function

If the chair is equipped with gas tilt controls, check that these lock securely and that there is no gradual change in tilt when loaded. Check and replace damaged wires and sheaths. □ 7.7. Crank-operated tilt/wear

If the chair is equipped with crankoperated tilt, check that there is no play and that all screws are tightened.

 7.8. Coxit mechanism/ operation

Make sure that the knobs for the flaps turn easily and are securely locked with the counter nut.

#### 8. Backrest mechanism

□ 8.1. Function/wear

Check and replace any worn parts, and make sure that moving parts are working correctly.

 8.2. Attachment/tightening
 Check that all screws, knobs and levers lock properly and that the button clips

lock properly and that the button clips are working correctly.
8.3. Plastic plugs/guide bushings

Make sure that guide bushings and plastic plugs are properly secured, and replace worn or damaged parts.

 8.4. Backrest/replacement/ cleaning

Replace the backrest with a new one and wash or replace any covers

□ 8.5. Gas spring lever/function

Check the gas pressure and stability of the gas spring. Ensure that it locks securely and that there is no gradual change in the backrest angle when loaded. Check and replace damaged wires and sheaths.

#### 9. Armrests

□ 9.1. Function/wear

Check and replace any worn parts and make sure that locking mechanisms and moving parts are working correctly.

9.2. Plastic plugs/guide bushings

Make sure that guide bushings and plastic plugs are properly secured, and replace worn or damaged parts.

 9.3. Armrest plates/replacement/ cleaning

Replace armrest plates with new ones.

□ 9.4. Armrest mechanics/function

Check all welds and that there is no damage to the tube system that may impair or weaken the structure.

#### **10.** Accessories

□ 10.1. Reset

Remove any accessories that are not normally installed on the chair and inspect them as detailed below before potentially placing them in storage.

□ 10.2. Mechanics

Inspect all welds and that there is no damage to mechanical parts that may impair or weaken the structure.

□ 10.3. Function/wear

Check and replace any worn parts and make sure that locking mechanisms and moving parts are working correctly.

□ 10.4. Padded parts

Discard padded parts to prevent spreading infection, and discard or wash covers according to washing instructions.

#### 11. Programming

□ Connect to the LiNX Electronics and update the electronics with the latest Bundle program for the REAL 6100 PLUS LiNX so that all devices in the system receive the latest version of the software. Reset the error log, history and charging statistics before the chair is delivered to a new user.

#### 12. Test drive

Test drive the chair and ensure that all electric functions, driving programs and brakes work in accordance with the standard program. If the chair is to be placed in storage, the main fuse on the front side of the battery box should be disconnected to save battery consumption.

# **Contact details**

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# Q

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# **10.6. Instructions for destruction**

Instructions for source separation of components. The highest possible component weight (depends on chair configuration) in specified in kg for each component.

#### Combustible:

- Seat (3.2 kg)
- Backrest (4 kg)
- Neck support (0.7 kg)
- Armrest (0.7 kg)
- Other padded parts sold by Mercado Medic AB

#### **Plastics:**

- Covers are sorted for disposal in accordance with markings on the plastic. If there is no marking, sort these as combustible.

#### Metal:

- Armrest mechanism (1.8 kg)
- Backrest mechanism (7.2 kg)
- Neck support mechanism
- (2.6 kg)
- Leg support (3.3 kg)
- Base (22.5 kg)
- Seat frame (7.7 kg)
- Actuator, tilt etc. (1.3 kg)
- Actuator up/down (3.6 kg)
- Gas spring for seat tilt (0.3 kg)
- Gas piston (3.2 kg)
- Other metal parts in products sold by Mercado Medic AB

#### Electronic waste:

- Motors (3.2 kg)
- Cables (0.3 kg)
- Power module (0.9 kg)
- Joystick (0.4 kg)
- Actuator box (0.15 kg)

#### Lead battery:

- Batteries (9.7 kg/unit)

