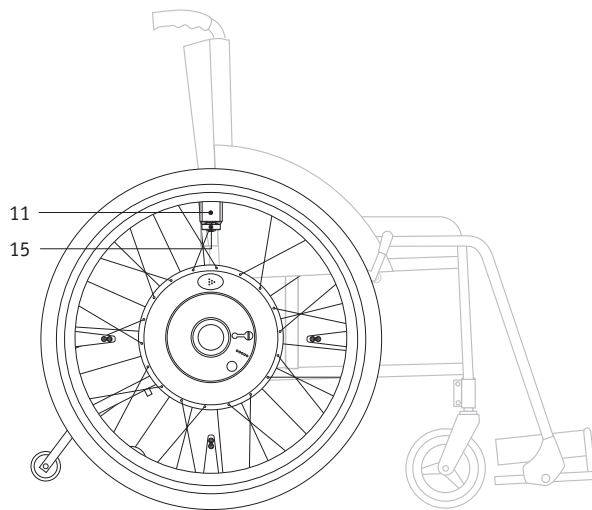
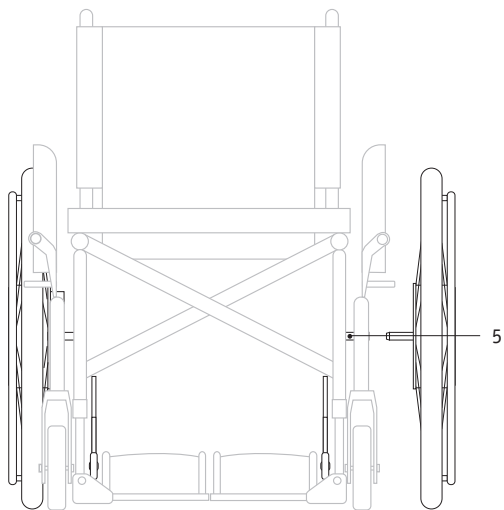
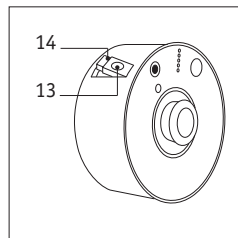
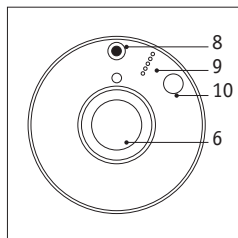
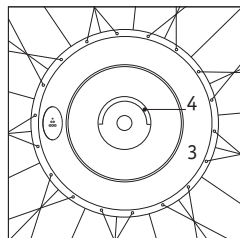
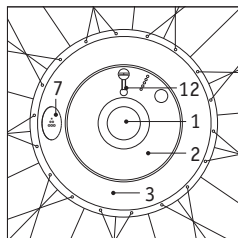


# e·motion

User's manual





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## Dear wheelchair driver

With your decision to use the e·motion wheelchair power by **alber** you got yourself a tangible glimpse of the future and a great deal of personal mobility.

After the following brief information we will introduce you to the e·motion and its functions, but first we would like to explain the advantages of the system to you:

- absolutely noiseless technology, gearless and brushless engine
- next to no maintenance
- the level of power that supports you and the driving characteristics are individually adjustable to potential physical handicaps
- superior steering electronics cater particularly to driving a wheelchair
- driving downhill operates with electrically supported braking deceleration
- mountable to almost all types of wheelchairs with a wheel size of 24"
- modular construction for easy and fast transport and service
- user-friendly because of easily accessible elements such as on/off switch, adjustment of the supporting power, removal of the batteries, and of the wheels

We wish you a lot of fun and all the best with your e·motion, your **alber** team

**Important safety instructions**  
**Please observe them closely!**

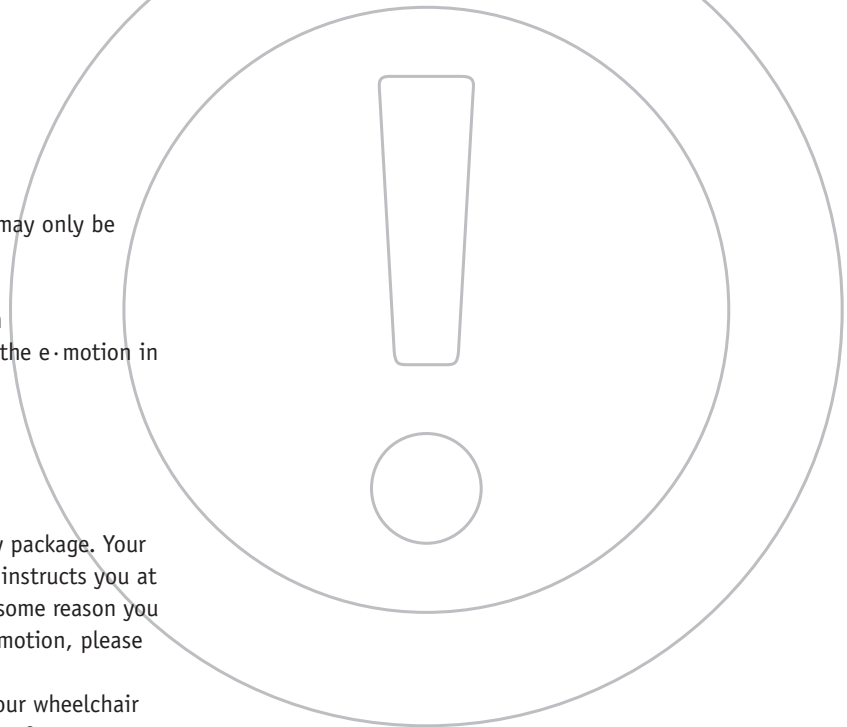
In the interest of your safety, the e·motion may only be operated by people who:

- have been taught how to use the e·motion
- are physically and mentally capable to use the e·motion in all possible situations of employment

The instruction session is part of the delivery package. Your local dealer or one of the **alber** distributors instructs you at your convenience and no extra charge. If for some reason you still do not feel comfortable handling the e·motion, please contact your local dealer.

Please also observe the maximum obstacle your wheelchair can handle determined by the wheelchair manufacturer. Do not exceed it. For maximum obstacles please consult the respective wheelchair manufacturers user's manuals.

Before you use a cellular phone or the like, please switch off your e·motion parked in a safe place.



**Never use the e·motion before you participated in the instruction session.**

## 1

### Standard Delivery Package

- 2 powered wheels
- 2 batteries
- 2 protection covers for the batteries
- alber charger BCS2402 plus user's manual
- 2 blade-type electric fuses 32 V, 15 A
- holding device already mounted on the wheelchair
- user's manual

### Essential Parts

(please fold out the attached general drawing)

- 1 Holding ring
- 2 Battery
- 3 Wheel hub
- 4 Bow-type handle
- 5 Holding device
- 6 On/Off switch
- 7 Selection button
- 8 Socket
- 9 LED display
- 10 Press button
- 11 Sensor
- 12 Protection cover
- 13 Fuse box
- 14 Fuse 32 V, 15 A
- 15 Adjustment ring


## 2

### Technical Data e · motion

Weight of the powered wheel:	10 kg
Weight of the nickel cadmium-battery:	2 kg
Maximum range *:	10 km
Motor power:	2 x 150 W
Voltage:	24 V
Batteries:	2 x 24 V, 2 x 2,4 Ah
Maximum weight added:	100 kg, please also stay within your particular wheelchair's manufacturer's instructions

**alber** charger BCS2402 for technical data, please consult its user's manual

\* The battery range varies greatly and is predominantly dependent on the quality of the driven surface on the driving conditions. At optimum conditions (even surface, fully charged batteries, motor power 50%, temperature of 20 °C) the indicated range can be reached. We reserve the right for technical and visual changes due to continuous development.

 The e · motion complies to the guidelines for medical products in the European Community 93/42/EWG.

## 3 Wheels

### 3.1 Holding Device for the Wheels

To mount the e-motion to your wheelchair special holding devices are necessary, which are mounted by **alber** or any authorized **alber** dealer. These holding devices generally allow the employment of the formerly used manual wheelchair wheels as well as the use of the e-motion powered wheels.

### 3.2 Delivery of the Wheels and Batteries

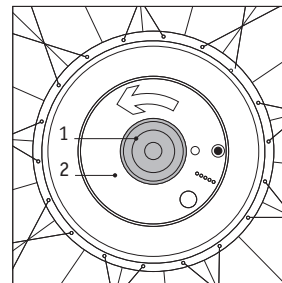
Due to safety reasons wheels and batteries are separately delivered. Thus you can mount the wheel immediately to the wheelchair as described in the following paragraph.

We placed plastic protection covers on the batteries' contact surfaces which you need to remove according to the instructions delivered with the batteries. Please keep these in a safe place because they are needed furthermore for the transportation and storage of the batteries (please see chapter 10).

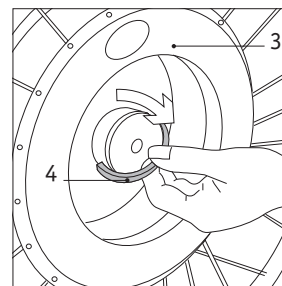
### 3.3 Mounting the Wheels

Take any one of the e-motion wheels.

- In case the batteries [2] are installed in the wheel. Turn the holding ring [1] counter clockwise and pull the entire battery [2] out of the wheel. Avoid touching the contact surfaces at the battery's back side.



- Take the bow-type handle [4] situated in the wheel hub [3] out to 90°, which releases the locking mechanism in the axletree.

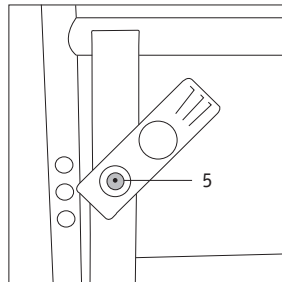
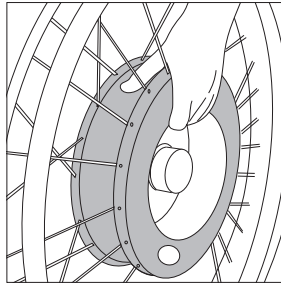




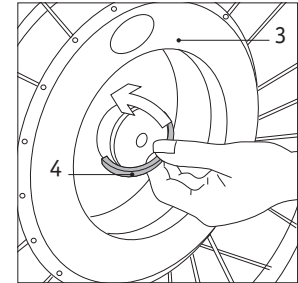


**Attention: never hold, shift or pull the wheel by the bow-type handle [4] to avoid risk of fracture.**

- The e-motion wheel is now prepared to mount on the wheelchair
- Remove your wheelchair's wheel according to the respective user's manual
- Hold the e-motion wheel at the wheel hub (as shown in the picture on the right) and insert it all the way into the holding device [5] on the wheelchair.



- Lock the wheel into place by putting the bow-type handle [4] back into its original position.
- Make sure the bow-type handle [4] is in its original position and level with the rest of the surface.
- The wheel sits correctly in its holding device [5] if it cannot be removed without pulling out the bow-type handle [4].
- Mount the second wheel accordingly.



## 4

### Inserting the Batteries

- Lock the wheelchair's brakes to avoid any movement of the wheels.

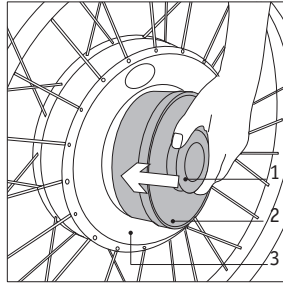
- Make sure there is no foreign matter such as pebbles, pieces of metal etc. in the wheel hub [3].

- Hold the battery [2] at its holding ring [1].

- Please remove the plastic protection covers from the battery, if you haven't done so. Avoid touching the contact surfaces.

- Insert the battery all the way into the wheel hub [3] (you hear a clicking sound as it catches).

- If you cannot insert the battery all the way, the wheel is possibly not entirely in its holding device. Please see chapter 3.



**Attention: never force the battery into the wheel hub!**

- Insert the second battery [2] into the other wheel accordingly

- Release the wheelchair's brakes.

It takes such little preparation to make your wheelchair ready to use. Whether you want to activate the e-motion or not, you can still move your wheelchair as usual manually. However, you will notice that you will need a bit more physical power as before.

## 5

### Tilt Support (available as optional accessory)



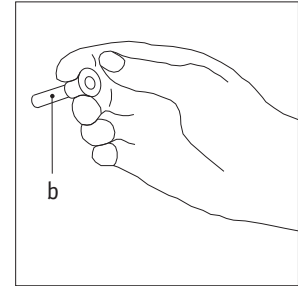
**Before you use the e-motion for the first time, you should make sure that your wheelchair is equipped with tilt support!**

In the interest of your safety, they should only be removed to surmount an obstacle such as high curbs and the like. In such case you need the help of an assisting person.

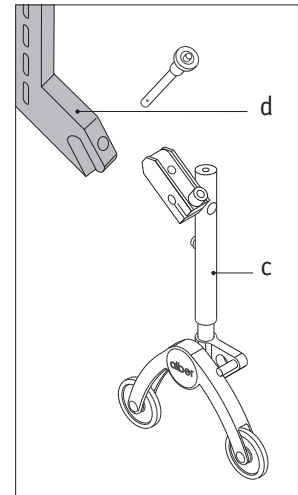
Since most wheelchairs come with tilt support, the **alber** tilt support is available only as an optional accessory. It is mounted at the **alber** plant or done by your authorized local dealer or distributor, who must observe the included instructions mounting the tilt support.

The tilt support adjusted to your wheelchair is mounted as follows:

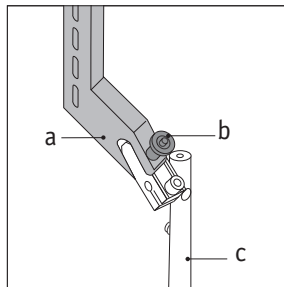
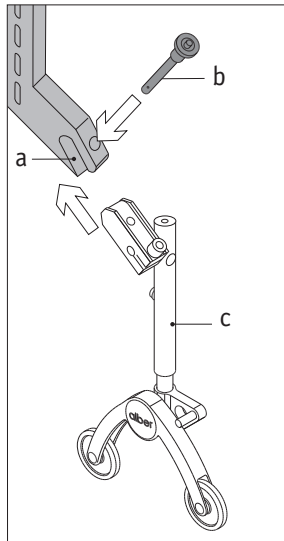
- First remove the quick pins [b] from the holding device [d] by pressing your thumb on the center of the pin while lifting it out with your middle and index finger (see detail in the drawing)



- Insert the tilt support [c] into the holding device [d]. (The tilt support for the left side is marked with an "L," for the right with an "R".)



- Secure the tilt support in the holding device [d] with the quick pins [b]. Press the locking mechanism in the center of the locking pin and push the pin entirely into the holding device.
- Check whether the quick pins [b] securely rest in the holding device [d]. You are not supposed to be able to remove them without pressing the locking mechanism in their center.
- To remove the tilt support, work your way back step by step.



**Driving the e-motion without attached tilt support is not safe, thus not admissible.**

The CE conformity for the e-motion is only valid in combination with the tilt support. In addition, the following points have to be taken in consideration:

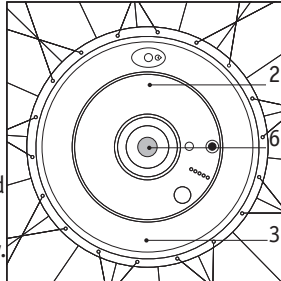
- Assembly and repairs as well as any other work done on the e-motion must be carried out by Ulrich Alber GmbH + Co. KG or any other personnel authorized by alber.
- The lower part of the tilt support must be attached high enough so that their wheels can rotate freely when the wheelchair is on a horizontal level.
- The user must pay particular attention to the following:
  - a) The tilt support must be unobstructed.
  - b) Please be extra careful when driving over obstacles higher than 40 mm and narrower than the sidewalk's curb.
  - c) The critical height of obstacles must be tested individually for each wheelchair equipped with the e-motion and his/her driver.
  - d) The point at which a certain wheelchair equipped with the e-motion tilts backwards at its back axle must also be tested by its user. The critical limit is reached at the point where the tilted wheelchair falls backwards.

## 6 Operation

All of e·motion's operation and service elements are housed in its battery [2] and the wheel hub [3].

### 6.1 Turning on

- Depress the on/off key [6] for a moment; the e·motion is switched on. You hear a beep when the e·motion is on.
- Depending on the pre-selected drive mode (see chapter 7), one or two signal tones follow.



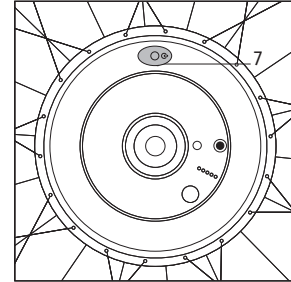
### 6.2 Turning off

Briefly press the on/off switch [6]. You just hear a beep when the e·motion is turned off.

## 7 Levels of Power

e·motion is equipped with two levels of power, which are indicated by an acoustic signal. (Please see chart 7.1).

- Turn the e·motion on.
- To activate the desired level, please press briefly the selection button [7]. The program automatically jumps one step per keystroke.
- Once you select a level, the e·motion remembers it even after turning it off, i.e. restarting the e·motion you are on the same level as you were before turning it off.



## 7.1 Power Survey

Signal	Motor performance	Recommended being of use area	Energy consumption
1 signal tone range	50%	Mainly used indoors	low, batteries saved, longest
2 signal tone	80%	Use in outside areas and for inclines, maximum braking available for declines	increased consumption



**The level of power support can be selected for each wheel and if necessary pre-selected also.**

## 7.2

### Sensitivity control

Your e-motion is equipped with three levels of power support (see chart 7.1). Each level can be adjusted individually to provide different power levels for the right or the left arm respectively. This means that you need a higher or lower level of power at the gripping rings to operate the e-motion. Your therapist or your local dealer can adjust the level of power you need at the adjustment ring. Please do not make your own adjustments at the adjustment ring [15]. If the wheels are adjusted differently, please mark them with stickers "L" (left) and "R" (right) in order to put the wheels back on the appropriate sides after e.g. transporting the wheelchair.



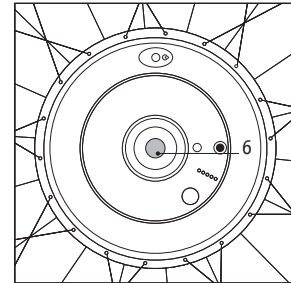
**The setting of the sensitivity and the motor parameter may be done exclusively by a specialized authorized dealer or your therapist.**

## 8

### Automatic Switch Off

To save energy your e-motion is equipped with an automatic switch off.

- The automatic switch-off is activated, when the drive is switched on but not used for a period of 30 minutes. An increase of the automatic switch-off time to 120 minutes is possible and can be adjusting by your specialist dealer or therapist.



## 9

### Batteries

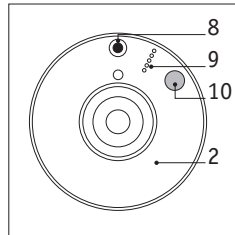
#### 9.1

##### Functions and Display

All the e-motion's displays necessary for operation are located on the battery [2].

You receive information concerning the charge of the batteries by pressing the button [10]. The battery's charge is displayed on the LED display [9]. You read the LED display as follows:

- 2 green active LEDs:  
60 -100 % charge capacity
- 2 orange active LEDs:  
20 -60 % charge capacity
- Red LED active:  
20% charge capacity
- 1 red LED flashes:  
< 10% charge capacity



##### Red light on:

**At this point, stop your e-motion immediately and recharge the batteries!**

- When 10% or less charge capacity is reached, 4 signals sound every minute.

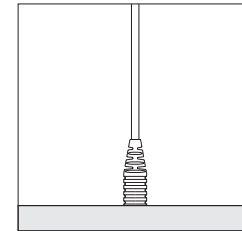
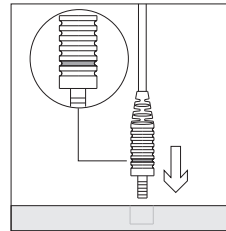
#### 9.2

##### Charging the Batteries

- Please exclusively use the **alber** charger BCS2402 to charge your batteries. The **alber** charger is part of the standard

delivery package.

- Plug the charger into the sockets [8] on both batteries [2].
- Push the battery charger plug into the socket [8] on each of the two re-chargeable batteries [2].  
A connection is made when the marking (red ring) on the charging plug is covered completely by the system-unit and no longer visible.



- For instructions concerning the charging capacity and the times it takes to charge the batteries, please consult the charger's user's manual.



**Both batteries are fully charged, when the green battery charger LEDa are active.**

**Depending on the selected level of power of the respective wheels, the batteries may run low at different times. Please also see chapter 7.1. Due to security reasons you should always turn off both batteries (even if one of them is not low yet) and recharge both at the same time. Temperature must be above 10°C when charging the batteries.**



### 9.3

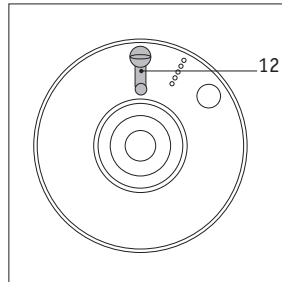
#### Storage and Transportation

Except for transportation, you generally may leave the batteries in the e-motion wheel at all times.

### 9.4

#### Protection of the Socket.

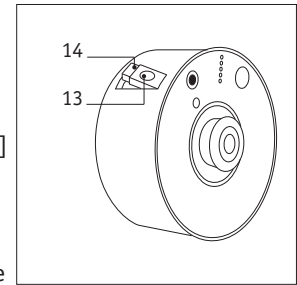
Whenever you do not use the socket [8], cover it with the plastic protection cover [12] to avoid dampness from entering into the socket.



### 9.5

#### Changing the Fuses

- Carefully pull out the fuse box [13] located on the side of the battery until it locks.
- Take out the plugged in blade-type fuse [14].
- Put in a new blade-type fuse [14].
- Push the fuse box [13] back into the battery [2].
- See whether the e-motion works by turning it on and driving a short distance.



If you need to change the fuse once again shortly after, there might be a malfunction in the system. In such case, please contact your dealer.

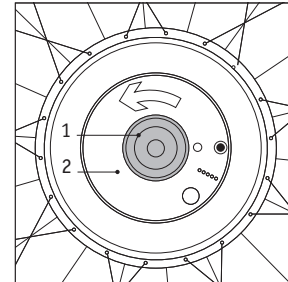
## 9.6 Recycling

At the end of the batteries' service life, **alber** or their dealers take them back to recycle them appropriately.

## 10 Transportation

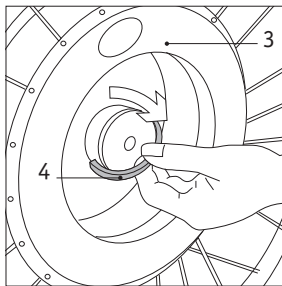
Generally the e-motion wheels remain on the wheelchair at all times. Only in case of transportation when the wheelchair has to be folded, you need to take the wheels off. Please follow these instructions:

- The following only applies to wheels which have different selected power levels:  
Indicate the right and left wheel as well as their respective batteries with the stickers „R“ (right) and „L“ (left).  
It is indispensable that you mount the respective wheels on the correct side to have the individually selected power level where you need it.
- Turn the holding ring [1] counter clockwise pulling out of the battery (2). Do the same at the other wheel. Please avoid touching the batteries' contact surfaces.

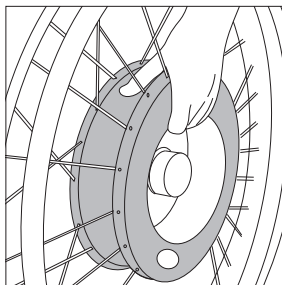


- Place the plastic protection covers on the batteries [2].

- Take the bow-type handle [4] situated in the wheel hub [3] out to 90°, which releases the locking mechanism within the axletree.



- Take the wheel off the wheelchair. Attention never hold, pull or shift the wheel by the bow-type handle [4] to avoid risk of fracture.



- Take off the tilt support.



**Avoid damaging the contact surfaces of the batteries during transportation by placing the plastic protection covers on said contact surfaces. Also avoid damaging the wheels' full floating axles.**

## 11 Signal Codes

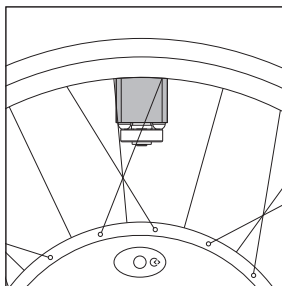
Your e-motion alerts you to various conditions of operation by acoustic signals:

Signal form	Meaning	fault appearance
•	On depressing key [7]: support mode 1 is activated	
• •	On depressing key [7]: support mode 2 is activated	
• •	If switched on, but not in used for 30 (or 120) minutes, then switch-off is automatic	
• • • •	During the journey: battery capacity less than 10%	
—	During the journey: battery must be re-charged, immediately (constant signal tone)!	4
— — — —	You hear 4 beeps, the charger is still connected, driving is not yet possible	1
— •	as you drive or when you turn it on, excess temperature of the motor	1
— • •	as you drive or when you turn it on, error of sensor	1
— • • •	as you drive or when you turn it on, excess-voltage	1
— • • • •	as you drive or when you turn it on, excess current	1
— • • • • •	as you drive or when you turn it on, malfunction	2
— — — — —	as you drive or when you turn it on, error of processor.	3

- 1 the e-motion wheel in question is slightly braked for 2 minutes; afterwards it is turned off completely. If this happens more frequently, please contact your dealer.
- 2 you cannot turn on the e-motion wheel in question. Please contact your dealer.
- 3 taking batteries in and out. If this error continues to come up, the motor needs to be exchanged.
- 4 after appearance of this warning signal, the power to the drive wheels is reduced.

## 12 Driving Instructions

e-motion's powered engine supports the power the wheelchair driver needs to move his or her wheelchair. The sensors (11) on the gripping rings convert that power into a brief turning motion of the motor. The power's force depends on the previously selected level of power (please see chapter 7.1). It is irrelevant whether you drive the wheelchair forward or backward.



When you are driving down a slope the e-motion's engine supports the brakes.

The e-motion only indirectly influences the actual technique of driving a wheelchair, i.e. you can stick with your habits for the most part.

- When using e-motion for the first time, avoiding initially putting into operation in the second support mode.
- Start if possible with mode 1, to get to know the system and practice in a safe, flat area.
- When you are familiar with the system, then you can activate the second mode.
- Push both wheels evenly to make your wheelchair go straight forward.
- Going down a slope, activate the e-motion engine to be able to brake more effectively.



**Your specialist dealer or the alber sales representatives can adapt the e-motion to your individual needs any time.**

- Turn the e·motion's engine off and lock the brakes before you get in or out of your wheelchair. Inadvertent grasping of the gripping ring could move the wheelchair.
- Always drive with fully charged batteries to avoid being stranded due to empty batteries. For longer trips use a second pair of batteries if necessary.
- Make sure the air pressure in the wheelchair's front wheels is correct because you enlarge the extent of your activities.
- Please turn off the e·motion and park on safe ground whenever you want to use a cellular phone.



**Please also follow the safety instructions in your wheelchair's user's manual.**

## 13 Care and Maintenance

### 13.1 Wheels

Your e·motion is a device low in maintenance, which will give you no problems if you take good care of it.

- To clean use regular household cleaners diluted in water, never petroleum ether or the like.
- Do not use a wet but merely damp cloth to wipe the surfaces.

### 13.2 Batteries

- We recommend to charge the batteries before you use your e·motion for the first time because there might be a potential loss of capacity due to storage and transportation.

- as you clean the batteries, make sure that the socket [8] does not get damp.
- To charge the batteries, always use the **alber** charger, which is part of the delivery package
- Avoid touching the surface contacts on the back side of the batteries.
- Take the batteries out of the wheel hubs, if you do not use your e-motion for a longer period of time.
- Always use the plastic protection covers when you store or transport the batteries.
- Do not store the batteries in place where they are exposed to high temperatures or direct sun light.

## 14 Service and Repair

If you use your e-motion in a standard, ordinary fashion, it is low in maintenance. However, in the interest of your safety, there should be a maintenance check regularly every two years, even if your e-motion outwardly shows no damage or malfunction whatsoever. Please contact your dealer or any **alber** representative concerning maintenance.



**When the batteries are transported, the plastic protection covers must be in place.**

## 15 Recycling

Your e-motion and its batteries are products with a long service life. At its end, **alber** or the alber representatives take the device or the batteries back to recycle them appropriately.

## 16 Warranty and Liability

### 16.1 Warranty

The time of warranty for the e-motion amounts to 12 months (6 months for the batteries) from the date of purchase, and covers faulty material and processing defects.

The warranty does not include:

- natural wear and tear
- damage caused by improper use
- forced damage
- unauthorized changes made on the device and/or its accessories

### 16.2 Liability

Neither Ulrich Alber GmbH + Co.KG nor its agents or authorized dealers and sales representatives will be liable for the safety, reliability or performance of the e-motion or for any claims for personal injury or property damage which may arise from the following:

- The e-motion was driven without tilt support.
- The e-motion was handled and used inappropriately.
- The e-motion was used other than in accordance with all instructions and precautions included in the operator's instruction manual and on the product labeling.
- The e-motion was not checked every two years by an authorized dealer or Ulrich Alber GmbH + Co.KG .
- Assembly, repairs and other work was done by unauthorized personnel.
- Parts or accessories other than those recommended by the manufacturer of the e-motion were used.
- Parts of the e-motion were changed or removed entirely.



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