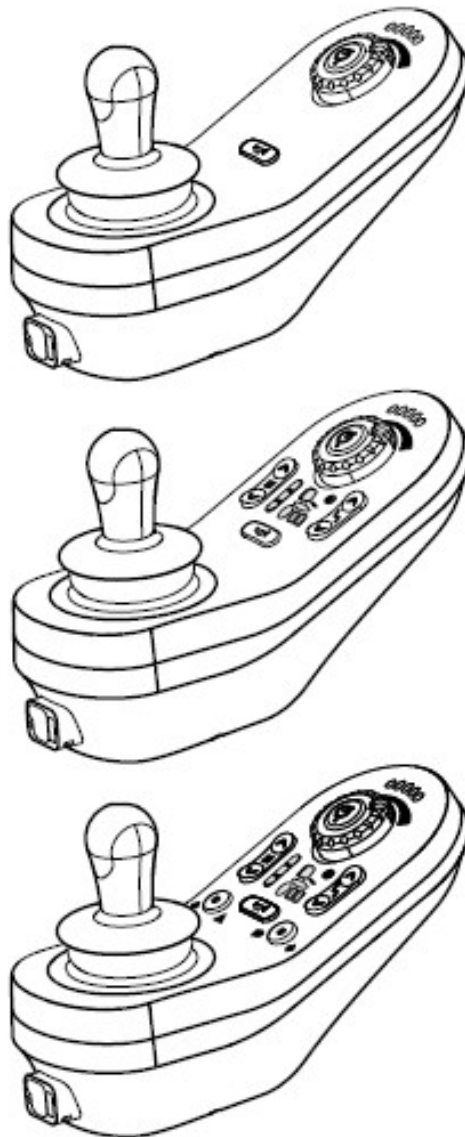


15.10.2023

User Manual LiNX

REMOTES

- DLX-REM110
- DLX-REM211
- DLX-REM216



Please note that due to variations or special requirements in the various markets, there may be additional information as appendices or included in the user guide.

For the visually impaired, this and other guides can be downloaded from our website and enlarged on a PC or other electronic aid.

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1. INTRODUCTION

1.1. About this manual

This document is a supplement to the product's user documentation.

This component itself does not bear a CE and a UKCA mark but is part of a product that complies with the Medical Device Regulation 2017/745, Class I and Part II UK MDR 2002 (as amended) Class I concerning medical devices. It is therefore covered by the product's CE and UKCA marking. See the product's user documentation for more information.

Only use this component if you have read and understood this manual. Seek additional advice from a healthcare professional who is familiar with your medical condition and clarify any questions regarding the correct use and necessary adjustment with the healthcare professional.

Note that there may be sections in this document, which are not relevant to your component, since this document applies to all available models (on the date of printing). If not otherwise stated, each section in this document refers to all models of the component.

Baldertech reserves the right to alter component specifications without further notice.

Before reading this document, make sure you have the latest version. You find the latest version as a PDF on our website www.baldertech.com.

1.2. Use of hazard symbols

Symbols and signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.



WARNING

Indicates a hazardous situation that could result in serious injury or death if it is not avoided.



CAUTION

Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.

NOTE

Indicates a hazardous situation that could result in damage to property if it is not avoided.

TIPS

Gives useful tips, recommendations and information for efficient, trouble-free use.

1.3. Available documentation

If you have problems reading this manual, it is also available in electronic format so that the text and pictures can be enlarged, etc. if so required. Contact your local dealer if you need an electronic copy. This manual and complete Technical Handbook including Service information is also available for download as a PDF file from our website www.baldertech.com.

1.4. The environment

These component must be sorted at source in accordance with applicable regulations on waste. Batteries and electronic equipment in particular must be taken into account.

1.5. Warranty

The terms and conditions of the warranty are part of the general terms and conditions particular to the individual countries in which this product is sold.

1.5.1. TERMS OF WARRANTY

Fulfillment of the warranty by Baldertech AS is conditional on the following terms:

Adjustments, service, and maintenance must be carried out by Baldertech AS authorized service partners.

The products must be used for their intended purpose in accordance with the Owner's Manual.

Repairs and maintenance must be carried out by skilled service personnel.

1.5.2. WARRANTY EXCLUSIONS

The Baldertech AS warranty does not apply in the following circumstances:

- If the terms of the warranty are not met
- Incorrect use of the component
- Incorrect storage and transport
- Incorrect adaptations or use of parts not supplied by Baldertech AS
- Repairs or adaptations carried out by non-Baldertech AS authorized personnel
- Damage caused by force majeure
- If the service schedule is not followed

1.5.3. SERVICE AND SUPPORT

We recommend the component to be inspected by an authorized service partner once per year for your own safety and for the product to function smoothly.

All Baldertech electronic components are identified with a unique serial number on the product label.

Always provide the serial number when contacting your supplier.

If you are in need of technical support, please contact your dealer. See "Contact Information". See "Routine Maintenance" form in Balder Service Information.

2. SAFETY

2.1. General safety notes



WARNING

Risk of injury or damage to the mobility device. Do not install, maintain or operate this equipment before you have read and understood all the instructions and all the manuals for this product and all other products that you use or install together with this product.

- Follow the instructions in the user manuals.



WARNING

Risk of serious injury or damage to the mobility device or surrounding property.
Wrong settings can make the mobility device uncontrollable or unstable. An uncontrolled or unstable mobility device can cause an unsafe situation such as a crash.

- Performance adjustments must only be made by qualified technicians or by persons who completely understand the programming parameters, the adjustment process, the configuration of the mobility device and the capabilities of the driver.
- Performance adjustments must only be made in dry conditions.



WARNING

Risk of injury or damage due to electrical shorts Connector pins on cables connected to the power module can still be live even when the system is off.

- Cables with live pins should be connected, restrained or covered (with non-conductive materials) so that they are not exposed to human contact or materials that could cause electrical shorts.
- When cables with live pins have to be disconnected, for example, when removing the bus cable from the remote for safety reasons, make sure to restrain or cover the pins (with non-conductive materials).



CAUTION

Risk of injury from hot surfaces
Remote module can get hot when exposed to strong sunlight for long periods.

- Do not leave mobility device in direct sunlight for long periods.



CAUTION

Risk of injury due to unintended movement

It is recommended that the mobility device, fitted with a Gyro module, has a drive function with disabled Gyro. If the mobility device is used in a moving vehicle (e.g. boat, bus or train) maybe the Gyro function is impaired and drive demands can result in unintended movement.

- When driving on a moving vehicle choose a drive function with disabled Gyro.
- If the mobility device does not have a drive function with disabled Gyro, contact your Baldertech provider.

NOTICE

Risk of damage to the connector pins.

If you touch the connector pins, they can become dirty or they can be damaged by electrostatic discharge.

- Do not touch the connector pins.

TIPS

Risk of damage to the mobility device There are no user-serviceable parts inside any case.

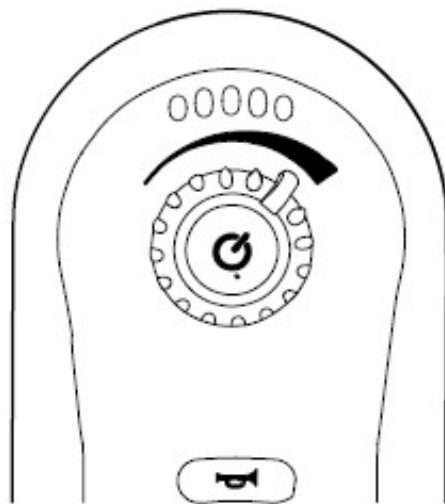
- Do not open or disassemble any case.

3. COMPONENTS

3.1. Overview

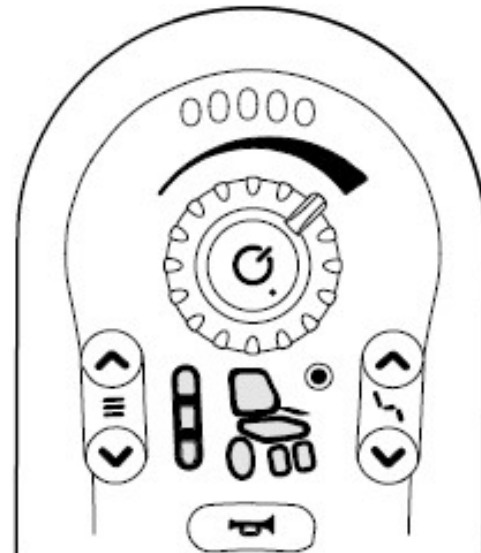
DLX-REM110

- Drive funtion



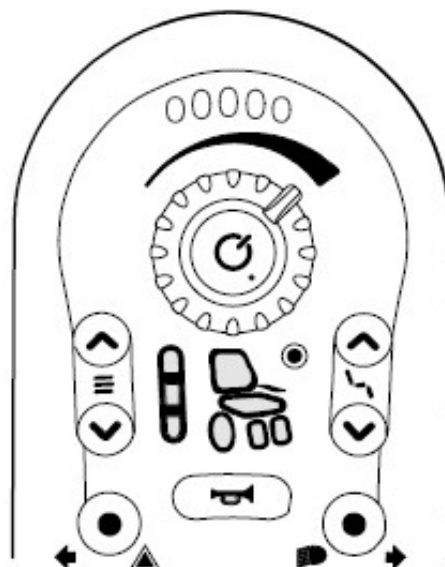
DLX-REM211

- Drive funtion
- Seating funtion



DLX-REM216

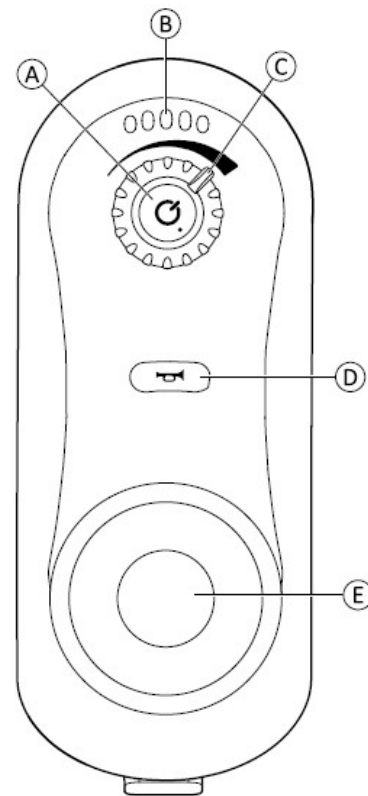
- Drive funtion
- Seating funtion
- Lights/Hazard lights



3.2. User interface

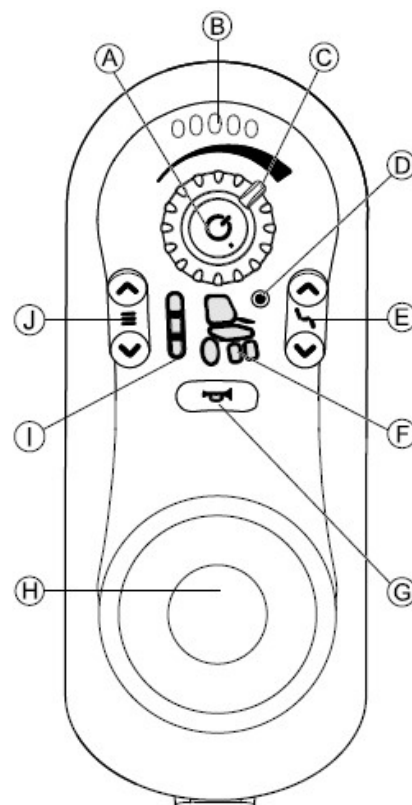
DLX-REM110

- A - ON/OFF button/Status indicator
- B - Battery gauge
- C - Speed dial
- D - Horn
- E - Joystick



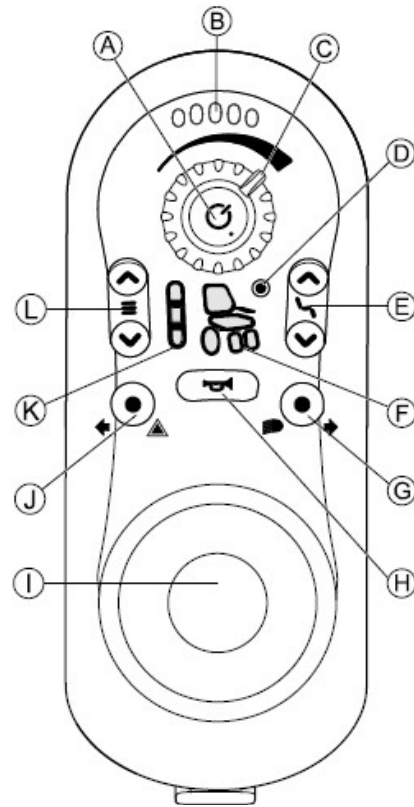
DLX-REM211

- A - ON/OFF button/Status indicator
- B - Battery gauge
- C - Speed dial
- D - Connectivity indicator
- E - Seating function selector
- F - Drive/actuator status
- G - Horn
- H - Joystick
- I - Drive function indicator
- J - Drive function selector



DLX-REM216

- A - ON/OFF button/Status indicator
- B - Battery gauge
- C - Speed dial
- D - Connectivity indicator
- E - Seating function selector
- F - Drive/actuator status
- G - Lights and direction indicator right
- H - Horn
- I - Joystick
- J - Hazard lights and direction indicator left
- K - Drive function indicator
- L - Drive function selector



3.3. The status indicator

The status indicator is located inside the ON/OFF button. When the LiNX remote is not powered up, the status indicator is not lit.

When the LiNX remote is powered up and there are no faults with the system, the status indicator lights green.

If there is a fault with the system when powered up, the status indicator flashes red. The number of flashes indicates the type of fault. Refer to 5.1.1 Fault codes and diagnosis codes.

3.4. Battery gauge

The battery charging status is shown in the battery gauge.

Maximum driving range

Red, two green and two amber LEDs on.



Decreased driving range

Red, amber and one green LED on.



Decreased driving range

Red and two amber LEDs on.



Decreased driving range

Red and one amber LED on.



Very low driving range

Only red LED on.

Batteries need immediate charging.



4. USAGE.

4.1. Operating the remote

4.1.1. POWERING UP / DOWN THE REMOTE

Power button

Powering up

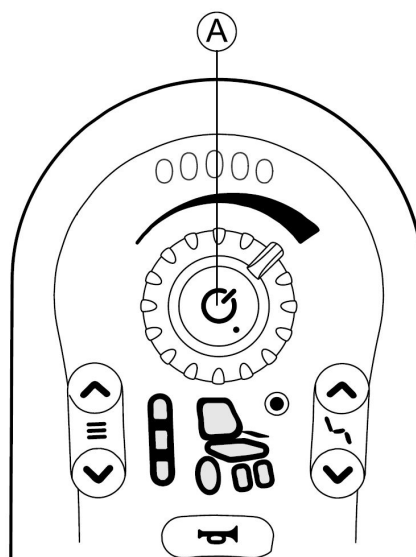
- Press ON/OFF button - A.
- If there is no fault with the system, the status indicator lights up green and the battery gauge displays the current battery status. Refer to 3.4 Battery gauge.
- If there is a fault with the system when powering up, the status indicator indicates the fault with a series of red flashes. Refer to 5.1.1 Fault codes and diagnosis codes. If the fault is one that prevents the system from driving, the battery gauge flashes continuously.

Powering down

- Press ON/OFF button - A.
- System powers down and status indicator switches off.

The ON/OFF button can also be used to perform an emergency stop, refer to 4.1.4 Emergency stop.

The ON/OFF button is also used to lock the system, refer to 4.1.6 Locking/unlocking the remote.



4.1.2. USING THE JOYSTICK

Joystick

The joystick controls the direction and speed of the wheelchair.

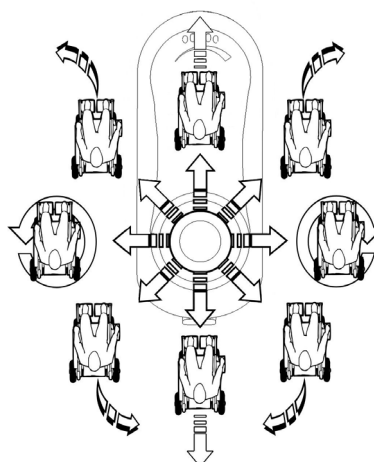
When the joystick is deflected from the center (neutral) position, the wheelchair moves in the direction of the joystick movement.

The speed of the wheelchair is proportional to the joystick deflections, so that the further the joystick is moved from the neutral position, the faster the wheelchair travels.

If the user moves the joystick back to the neutral position, the wheelchair slows down and stops.

If the user releases the joystick from any position other than the neutral position, the joystick returns to the neutral position and the wheelchair slows down and stops.

The joystick can also be used to wake up the system when in sleep mode, if this parameter has been enabled by the provider. Refer to 4.1.7 The sleep mode.

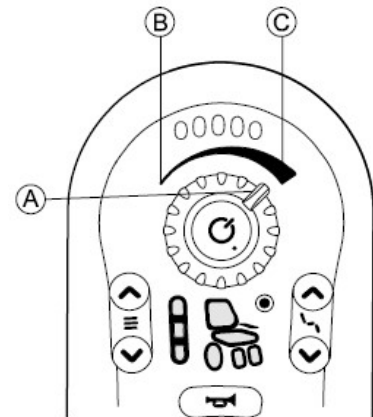


4.1.3. CONTROLLING THE MAXIMUM SPEED

Speed dial

The speed dial allows you to limit the maximum speed of the mobility device (that is the speed when the joystick is fully deflected) to suit your preferences and environment.

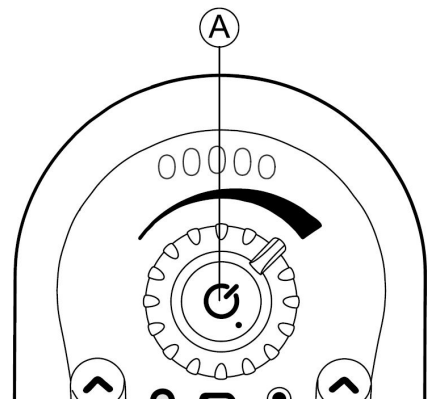
The speed dial - A offers ten discrete steps between the lowest speed - B and the highest speed - C.



4.1.4. EMERGENCY STOP

Power button

If you press the ON/OFF button - A while driving, an emergency stop is carried out. The remote powers down after this.

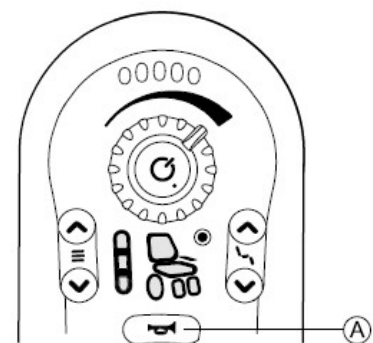


4.1.5. USING THE HORN

Horn button

Press the horn button - A to sound the horn. The horn sounds for as long as the horn button is pressed.

The horn button is also used for unlocking a locked system. Refer to 4.1.6 Locking/unlocking the remote.



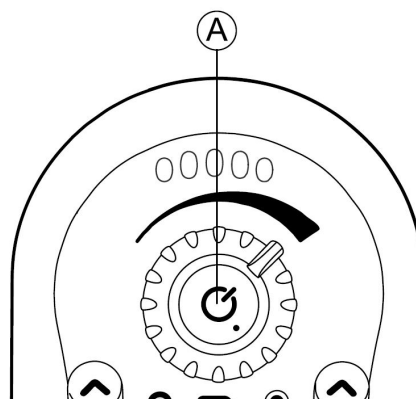
4.1.6. LOCKING/UNLOCKING THE REMOTE

Power button

Locking the remote

Press ON/OFF button - A for more than four seconds when remote is powered up.

When entering the locked state, the battery gauge indicates the transition by flashing LEDs red, amber and green (far left, middle and far right) three times.



Power button and Horn button

Unlocking the remote

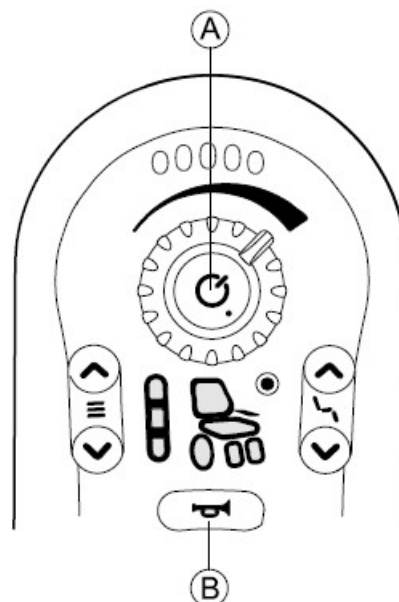
- Press ON/OFF button - A.
- Press horn - B twice within ten seconds.

If you implement the unlock sequence incorrectly or press the ON/OFF button again before the unlock sequence is complete, the system returns to the locked state.

During an unlock attempt, the battery gauge indicates the system is in a locked state by flashing LEDs red, amber and green (far left, middle and far right) until either the system is powered off, unlocked or the Sequence Timeout is reached.

TIPS

If an DLX-REM050 is used as attendant control unit, it is locked or unlocked, too. You can also lock and unlock the system DLX-REM050. When unlocking the system via the DLX-REM050, the DLX-REM050 is in charge automatically.



4.1.7. THE SLEEP MODE

The sleep mode is no factory setting, but can be enabled by your provider. If this parameter is set ON, the system goes into sleep mode after a period of time without user activity. This period of time can be set by the provider.

The transition to sleep mode is indicated by the remote module's LEDs dimming gradually. During the transition, the joystick, horn, speed dial and power button will continue to operate. To wake the system from sleep, either press the ON/OFF button or move the joystick, if this parameter has been enabled by the provider.

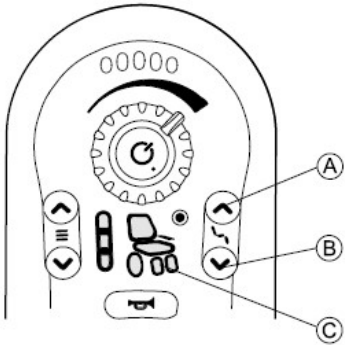
4.1.8. OPERATING POWERED SEATING FUNCTIONS

4.1.8.1. Activate seating function

Powered seating functions, such as powered elevating legrests or powered recline, are carried out as described below.

Seating function selector

- Press Seating function key - A.
The wheelchair changes to seating function and the Drive/actuator status display - C lights up amber.
- Press Seating function selector keys - A and - B or move joystick left or right several times until desired seating function lights up. Refer to 4.1.8.2 Displayed symbols and their meanings.
- Deflect joystick to front or rear to activate actuator.



TIPS

The distance you deflect the joystick determines the dynamics of the movement.

If you only deflect the joystick a little, the actuator only moves slowly.

If you deflect the joystick as far as you can, the actuator moves faster.

4.1.8.2. Displayed symbols and their meanings

Not every wheelchair has all options.

Function	Symbol
Seat tilt	
Recline	
Seat lifter	

Left or center-mount powered elevating legrest



Right powered elevating legrest or center-mount powered length adjustment legrest



Both powered elevating legrests or center-mount powered elevating legrest with length compensation



Recline and legrest



Stand-up function



None



Unspecified



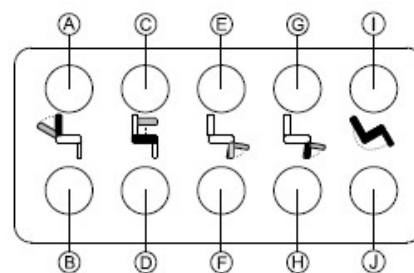
4.1.8.3. The 10 way switch module

Button 1 to 10

Press and hold button to move particular seating function. Seating function moves as long as button is pressed.

Standard programming is shown below, but this may vary.

- A - Recline forward
- B - Recline backwards
- C - Lifter up
- D - Lifter down
- E - Legrest tilt down
- F - Legrest tilt up
- G - Legrest length out
- H - Legrest length in
- I - Tilt forward
- J - Tilt backwards

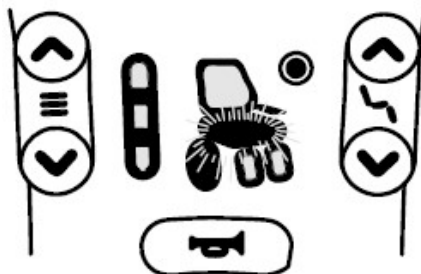


4.1.9. SPEED REDUCTION AND SEATING FUNCTION INHIBITS

If the lifter has been adjusted above a certain point, the drive electronics considerably reduces the speed of the wheelchair. If speed reduction has been activated, drive mode can only be used to carry out movements in reduced speed and not for regular driving. To drive normally, adjust the lifter until the speed reduction has been deactivated again.

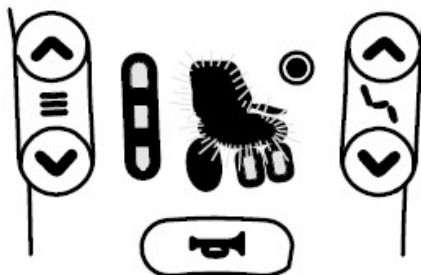
Speed reduction

Speed reduction is shown in the status display. If the lifter is raised above a certain point, the lifter symbol and the drive symbol start pulsing. These two symbols remain pulsing while driving to show the speed reduction until speed reduction has been deactivated again.



Seating function inhibits

The maximum tilt limit switch is a function to prevent the backrest angle from extending beyond a maximum pre-set angle, when the lifter, seat tilt or recline is below a certain point. The seat electronics stops these seatfunctions automatically to avoid mechanical collision and the seat tilt or backrest symbol starts pulsing.

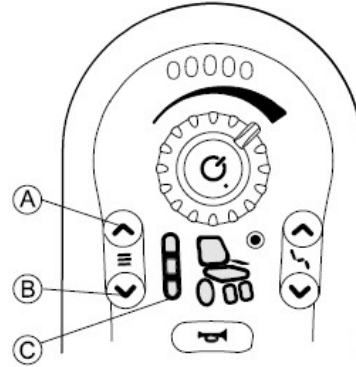


4.1.10. OPERATING THE DRIVE FUNCTION

4.1.10.1. Activating the drive function

Drive function selector

- Press Drive function key - A.
The remote switches to drive function, the Drive function indicator - C shows the pre-selected drive function (1,2 or 3) and the wheel in the drive status display lights up green.
- Press Drive function selector keys - A or - B until desired drive function lights up.
The Drive function indicator - C shows the drive function.



TIPS

With the Drive function selector key you can choose between three different drive functions, that are configured by Baldertech and can be customized to your needs and requests by the provider.

4.1.10.2. Displayed symbols and their meanings

Function	Symbol
Drive function 1 Configured without Gyro, very low speed for indoor use and manouver in narrow spaces.	
Drive function 2 Configured without Gyro, reduced speed for indoor use.	
Drive function 3: Configured with Gyro for 10km/h chairs, mostly used outdoor and max speed.	

4.1.11. OPERATING THE LIGHT FUNCTIONS

Not every wheelchair has lights and/or direction indicators.

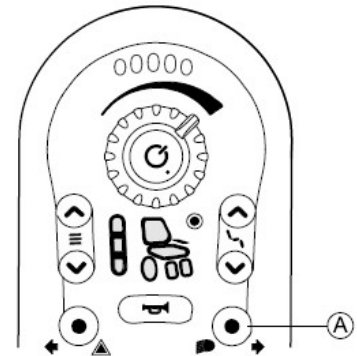
4.1.11.1. Activating the lights

Light button

- Short press Light button - A.
The lights are turned on or off.

TIPS

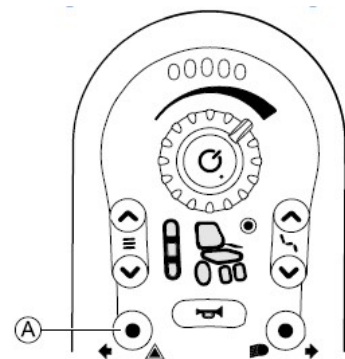
If you drive outdoor, turn on the lights under bad visibility conditions or darkness.



4.1.11.2. Activating the hazard lights

Hazard light button

- Short press Hazard lights button - A.
The hazard lights are turned on or off.



4.1.11.3. Activating the direction indicators

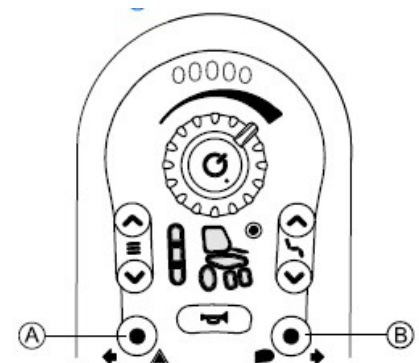
Direction indicator buttons

Direction indicator left

- Press Hazard lights button - A for more than three seconds.
Left direction indicator is turned on.
- To turn off direction indicator, short press Hazard lights button again.

Direction indicator right

- Press Light button - B for more than three seconds.
Right direction indicator is turned on.
- To turn off direction indicator, short press Light button again.



5. TROUBLESHOOTING

5.1. Fault diagnosis

If the electronic system shows a fault, use the following fault-finding guide to locate the fault.

TIPS

Ensure that the drive electronics system is powered up before starting any diagnosis.

If the status display is OFF:

- Check whether the drive electronics system is powered up.
- Check whether all cables are correctly connected.
- Ensure that the batteries are not discharged.

If a fault number is displayed in the status display:

- Proceed to the next section.

5.1.1. FAULT CODES AND DIAGNOSIS CODES

Power button

If there is a fault with the system when it is powered up, the status indicator flashes red. The number of flashes indicates the type of fault.

The table below describes the fault indication, and a few possible actions that can be taken to rectify the problem.

The actions listed are not in any particular order and are suggestions only. The intention is that one of the suggestions may help you clear the problem. If in doubt, contact your provider.



Flash code	Fault description	Possible action
1	Remote fault	<ul style="list-style-type: none">• Check cables and connectors• Contact your provider
2	Network or configuration fault	<ul style="list-style-type: none">• Check cables and connectors• Recharge the batteries• Check charger• Contact your provider
3	Left motor fault	<ul style="list-style-type: none">• Check cables and connectors• Contact your provider
4	Right motor fault	<ul style="list-style-type: none">• Check cables and connectors• Contact your provider

Flash code	Fault description	Possible action
5	Left magnetic brake fault	<ul style="list-style-type: none"> • Check cables and connectors • Check left magnetic brake is engaged • Refer to the chapter “disconnecting the breaks/drive motors” in the user manual of your wheelchair • Contact your provider
6	Right magnetic brake fault	<ul style="list-style-type: none"> • Check cables and connectors • Check right magnetic brake is engaged • Refer to the chapter “disconnecting the breaks/drive motors” in the user manual of your wheelchair • Contact your provider
7	Module fault (other than remote module)	<ul style="list-style-type: none"> • Check cables and connectors • Check modules • Recharge batteries • If the chair was stalled, reverse away or remove obstacle • Contact your provider

5.2. OON (“Out Of Neutral”)

OON (“Out Of Neutral”) is a safety feature that prevents accidental driving or seating movements, when:

- the system is powering up,
- after a function change or
- when the system comes out of an inhibit or drive lock-out.

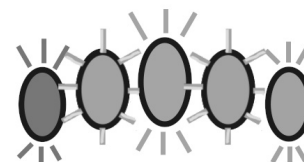
Direction indicator buttons

Drive OON warning

The joystick must be in the center position:

- when a system is powering up,
- on a function change or
- when transitioning from a drive lock-out or inhibit state.

Otherwise a drive OON warning is displayed. During a drive OON warning, the battery gauge LEDs and the drive wheel indicator (if fitted) flash continually (all on, followed by all off) to alert the user. In this state the wheelchair does not drive. If the joystick is returned to the center position, the warning clears and the wheelchair drives normally.



Seating OON warning

When a system is powering up or after a function change, no direct access switches can be active, otherwise a seating OON warning is displayed.

During a seating OON warning, the battery gauge LEDs and the seating indicator flash continually (all on, followed by all off) to alert the user. In this state the seating motions do not operate. If the switches are deactivated, the warning clears and the seating motions operate normally.

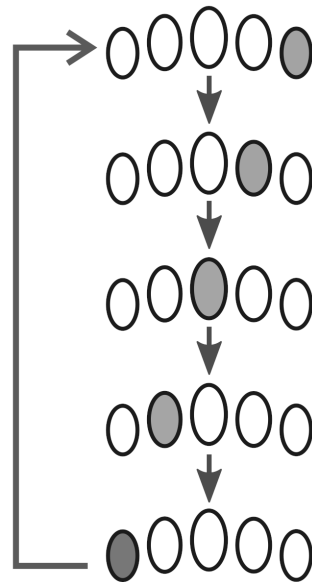
5.3. Drive inhibit indication

The drive inhibit mode ensures that the wheelchair does not drive when connected to the charger.

Battery gauge lights

Drive inhibit mode is indicated by the battery gauge with a right-to-left chase sequence.

The chase sequence continues until the fault condition has been cleared.



5.4. Cut-off voltage

Battery gauge lights and Power button

When the battery voltage decreases below the battery cut-off voltage:

- the status indicator flashes red (Flash code 2, refer to 5.1.1 Fault codes and diagnosis,
- the red LED on the battery gauge flashes,
- the horn sounds once every ten seconds



6. TECHNICAL DATA

6.1. Mechanical specifications

Permissible operating, storage and humidity conditions	
Temperature range for operation according to ISO 7176-9	• -25° ... +50 °C
Recommended storage temperature	• 15 °C
Temperature range for storage according to ISO 7176-9	• -40° ... +65 °C
Operating humidity range according to ISO 7176-9	• 0 ... 90 %RH
Degree of protection	• IPX4
Operating forces	
Joystick	• 1.9 N
Power button	• 2.5 N
Speed dial	• 1.2 N
Horn button	• 2.5 N

6.2. Electrical specifications

Parameter	Min.	Nominal	Max.	Units
Operating voltage (Vbatt)	• 17	• 24	• 34	• V
Idle current		• 56		• mA at 24V
Quiescent current (power off)			• 0.23	• mA at 24V



7. CONTACTS

Baldertech AS

Email : info@baldertech.com

Telephone : +47 32 11 11 00

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Label serial number

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