

Invacare® LiNX

DLX-REM110, DLX-REM211, DLX-REM216, Supplement
to power wheelchair user manual

en **Remote
User Manual**

This manual **MUST** be given to the user of the product.
BEFORE using this product, read this manual and save for future reference.



Yes, you can.®

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1 General

1.1 About this manual

This document is a supplement to the power wheelchair's documentation.

The product itself does not bear a CE mark but is part of a product that complies with Directive 93/42/EEC concerning medical devices. It is therefore covered by the power wheelchair's CE marking. See the power wheelchair's documentation for more information.

For more information about the product, for example product safety notices and product recalls, contact your local Invacare representative. Before reading this manual, make sure you have the latest version. You find the latest version on the Invacare website. For address and website see back page of this manual.

1.2 Symbols in this manual

In this manual, hazard statements are indicated by symbols. The symbols are accompanied by a signal word that indicates the severity of the risk.



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.



IMPORTANT

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



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



This symbol identifies a list of various tools, components and items which you will need in order to carry out certain work.

1.3 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.

1.4 Service life

We estimate a service life of five years for this product, provided it is used in strict accordance with the intended use as set out in this document and all maintenance and service requirements are met. The estimated service life can be exceeded if the product is carefully used and properly maintained, and provided technical and scientific advances do not result in technical limitations. The service life can also be considerably reduced by extreme or incorrect usage. The fact that we estimate a service life for this product does not constitute an additional warranty.

1.5 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.



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.



Risk of damage to the mobility device

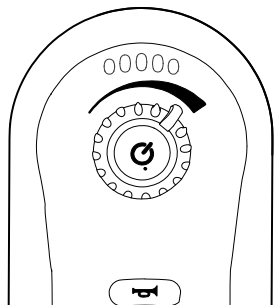
There are no user-serviceable parts inside any case.

- Do not open or disassemble any case.

2 Components

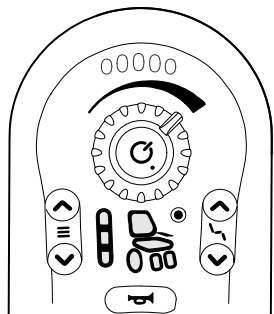
2.1 Overview

DLX-REM110



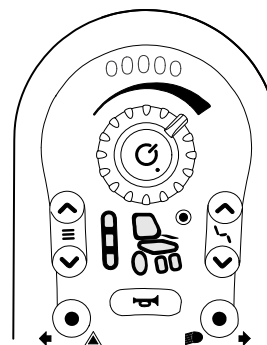
- Drive function

DLX-REM211



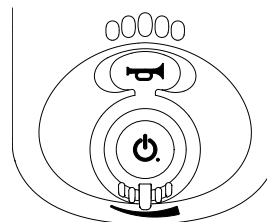
- Drive function
- Seating function

DLX-REM216



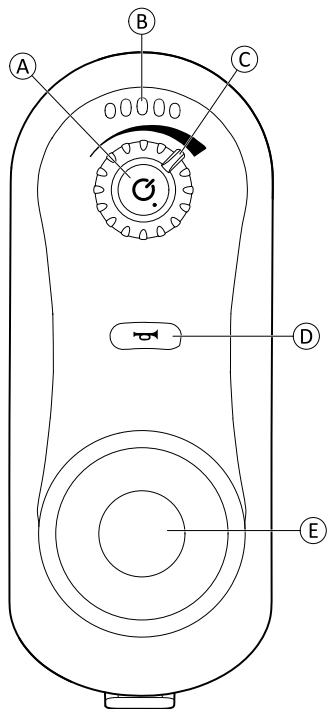
- Drive function
- Seating function
- Lights/Hazard lights

DLX-REM050



- Attendant control unit with drive function

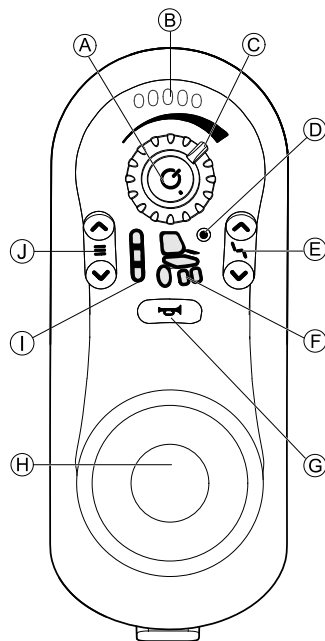
2.2 User interface DLX-REM110



- Ⓐ ON/OFF button/Status indicator
- Ⓑ Battery gauge
- Ⓒ Speed dial

- Ⓓ Horn
- Ⓔ Joystick

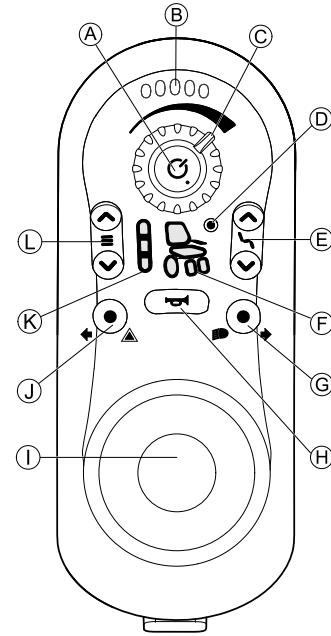
2.3 User interface DLX-REM211



- Ⓐ ON/OFF button/Status indicator
- Ⓑ Battery gauge
- Ⓒ Speed dial

- Ⓓ Connectivity indicator
- Ⓔ Seating function selector
- Ⓕ Drive/actuator status
- Ⓖ Horn
- Ⓗ Joystick
- Ⓘ Drive function indicator
- ⓵ Drive function selector

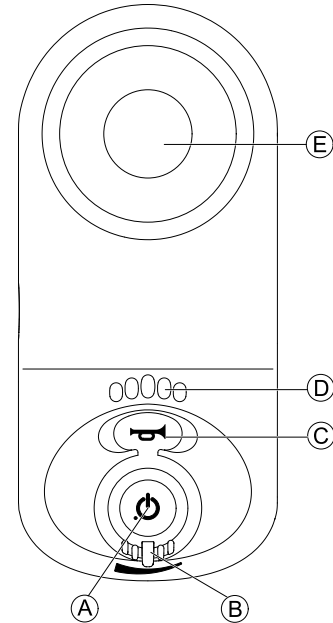
2.4 User interface DLX-REM216



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

- ⓐ Lights and direction indicator right
- ⓑ Horn
- ⓒ Joystick
- ⓓ Hazard lights and direction indicator left
- ⓔ Drive function indicator
- ⓕ Drive function selector

2.5 User interface DLX-REM050 (only as attendant control unit)



- ⓐ ON/OFF button/Status indicator
- ⓑ Speed dial
- ⓒ Horn
- ⓓ Battery gauge
- ⓔ Joystick

2.6 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 *4.1.1 Fault codes and diagnosis codes, page 26*.

2.7 Battery gauge

The battery charging status is shown in the battery gauge.



Maximum driving range

Green, green, amber, amber and red LEDs on.



Decreased driving range

Red, amber and one green LED on.



Decreased driving range

Red and two amber LEDs on.

Decreased driving range



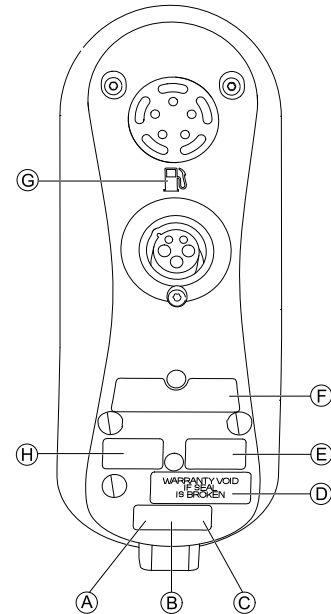
Red and one amber LED on.
Consider charging batteries.


Very low driving range

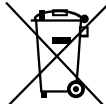






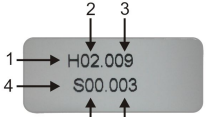
Only red LED on.
Batteries need immediate charging.

2.8 Labels on the product



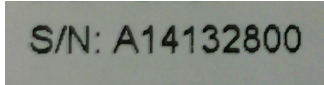
| | | |
|----------|--|---|
| <p>Ⓐ</p> |  <p>READ INSTALLATION MANUAL BEFORE USE</p> | <p>Recommendation to read the instruction manual before using the module.</p> |
| <p>Ⓑ</p> | <p>IPx4</p> | <p>This is the enclosure's ingress protection rating.</p> |

| | | |
|----------|--|---|
| <p>Ⓒ</p> |  | <p>This is the WEEE symbol (Waste Electrical and Electronic Equipment Directive).</p> <p>This product has been supplied from an environmentally aware manufacturer. This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according to legislation.</p> <ul style="list-style-type: none"> • The 'crossed out wheellie bin' symbol is placed on this product to encourage you to recycle wherever possible. • Please be environmentally responsible and recycle this product through your recycling facility at its end of life. |
| <p>Ⓓ</p> |  | <p>Tamper evident seal.</p> |

| | | |
|----------|---|--|
| <p>Ⓔ</p> |  | <p>Product label containing:</p> <ul style="list-style-type: none"> • Dynamic Controls' 'dynamic' logo • Dynamic Controls' website address • Dynamic Controls' part description |
| <p>Ⓕ</p> |  | <p>Product label containing:</p> <ul style="list-style-type: none"> • The product's bar code • The product's serial number • The product's part number |
| <p>Ⓖ</p> |  | <p>The petrol pump indicates the battery charger input.</p> |
| <p>Ⓕ</p> |  | <p>Hardware and application firmware version label</p> <ol style="list-style-type: none"> 1. Hardware version 2. Hardware major version 3. Hardware minor version 4. Application version 5. Application major version 6. Application minor version |

Serial number and date of manufacture

The serial number on a Dynamic Controls product provides both the date of manufacture as well as a unique serial number for the particular module.



The format, as shown above, is **MYynn timer**, where:

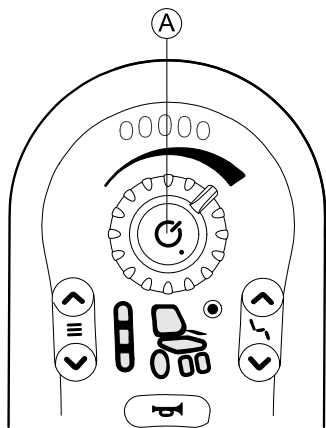
- **M** is for the month of manufacture, using the letters A to L (A = Jan, B = Feb, C = Mar, etc.),
- **YY** is the year of manufacture,
- **nnnnnn** is a unique six digit sequential number.

For example, the remote's serial number, as shown above, begins with A14 indicating that it was manufactured in January 2014, and its unique, sequential value is 132800.

3 Usage

3.1 Operating the remote

Your wheelchair always powers up in drive function 1 and is ready to drive. For remotes that provide multiple drive functions (DLX-REM211 or DLX-REM216) the drive function can be changed. For details about changing the drive function, refer to *3.7 Activating the drive function, page 20*.



Powering up the remote

1. 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 *2.7 Battery gauge, page 11*.
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 *4.1.1 Fault codes and diagnosis codes, page 26*. If the fault is one that prevents the system from driving, the battery gauge flashes continuously.

Powering down the remote

1. Press ON/OFF button **A**.
2. System powers down and status indicator switches off.

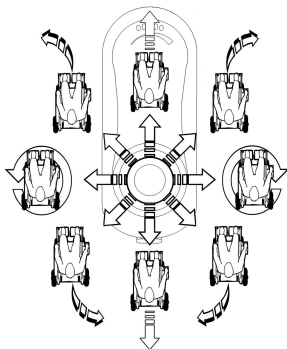
The ON/OFF button can also be used to perform an emergency stop, refer to *3.2 Emergency stop, page 15*.

The ON/OFF button is also used to lock the system, refer to *3.4 Locking/unlocking the remote, page 16*.

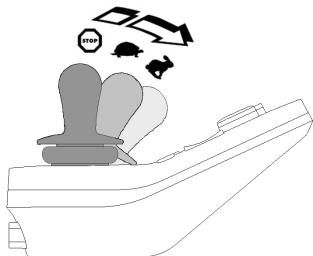
3.1.1 Using the joystick

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.



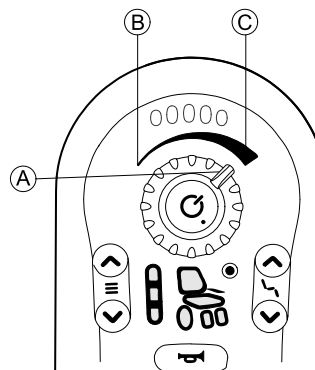
If the user moves the joystick back to the neutral position, the wheelchair slows down and stops.

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 *3.5 The sleep mode, page 17*.

3.1.2 Controlling the maximum speed

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.

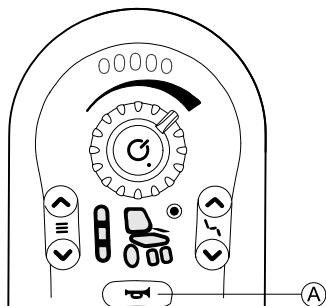


The speed dial (A) offers ten discrete steps between the lowest speed (B) and the highest speed (C).

3.2 Emergency stop

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

3.3 The horn

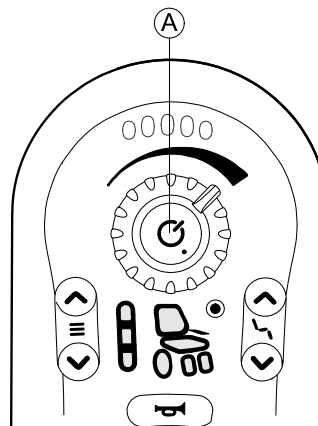


Press the horn button **A** to sound the horn. The horn sounds for as long as the horn button is pressed.

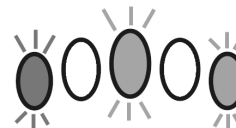
The horn button is also used for unlocking a locked system. Refer to *3.4 Locking/unlocking the remote*, page 16.

3.4 Locking/unlocking the remote

Locking the remote

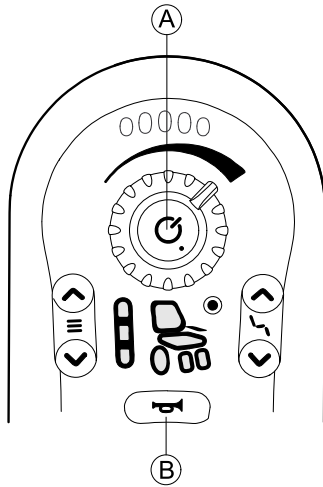


1. Press ON/OFF button **A** for more than four seconds.



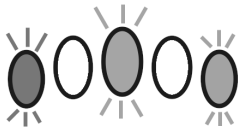
When entering the locked state, the battery gauge indicates the transition by flashing LEDs red, amber and green (far left, middle and far right) three times.

Unlocking the remote



1. Press ON/OFF button **A**.
2. 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.

i 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. For information about operating the DLX-REM050, refer to chapter 3.13 *Attendant control unit (DLX-REM050)*, page 24.

For information about operating the DLX-ACU200, refer to the user manual of the DLX-ACU200.

3.5 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.

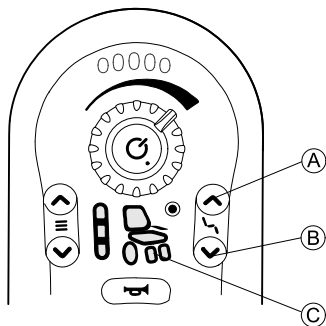
The transition to sleep mode is indicated by the remote module's LEDs dimming gradually. During the transition, the joystick, horn, speed dial and power button will continue to operate.

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.

3.6 Operating powered seating functions

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

3.6.1 Activate seating function



1. Press Seating function key **A**.
 - The wheelchair changes to seating function and the Drive/actuator status display **C** lights up amber.
2. Press Seating function selector keys **A** and **B** or move joystick left or right several times until desired seating function lights up. Refer to *3.6.2 Displayed symbols and their meanings, page 18*.
3. Deflect joystick to front or rear to activate actuator.



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.

3.6.2 Displayed symbols and their meanings

Not every wheelchair has all options.



Powered seat tilt



Powered recline



Seat lifter



Left or center-mount powered elevating legrest



Right powered elevating legrest



Both powered elevating legrests

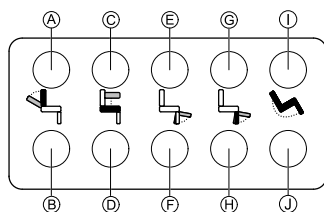


None



Unspecified

3.6.3 The 10 way switch module



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

The lower row of buttons move the seating function to it's home position, see table below for details.

- Ⓐ Recline down
- Ⓑ Recline up
- Ⓒ Lifter up
- Ⓓ Lifter down
- Ⓔ Legrest left up

- Ⓕ Legrest left down
- Ⓖ Legrest right up
- Ⓗ Legrest right down
- Ⓘ Tilt backwards
- ⓵ Tilt forwards

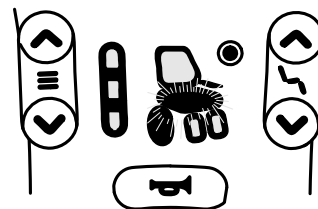
3.6.4 Speed reduction and seating function inhibits



The mentioned speed reduction and seating function inhibits do not apply to all Invacare wheelchair models.

Speed reduction

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.

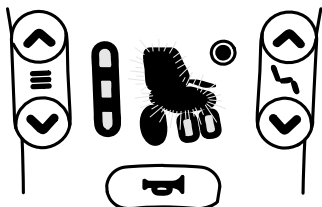


Speed reduction is shown in the status display. If the lifter is raised above a certain point, the lifter symbol and the drive

symbol start pulsing. These two symbols remain pulsing while driving to show the speed reduction until speed reduction has been deactivated again.

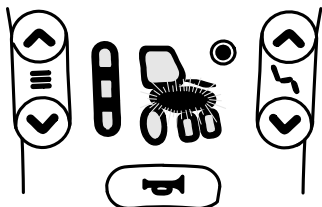
Seating function inhibits

- **Tilt limit**



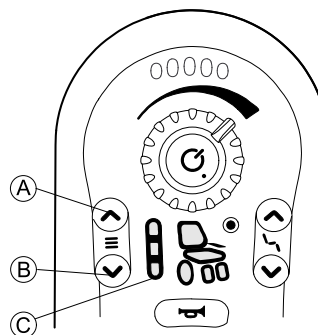
The maximum tilt limit switch is a function to prevent the backrest angle from extending beyond a maximum pre-set angle, when the lifter is raised above a certain point. The drive electronics stops automatically and the seat tilt or backrest symbol starts pulsing.

- **Lifter seat lockout**



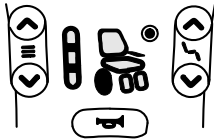
The drive electronics is equipped with a lifter seat lockout switch to prevent the lifter from rising up above a certain point when the seat tilt or backrest angle is adjusted above a certain point. The drive electronics stops automatically and the lifter symbol starts pulsing.

3.7 Activating the drive function



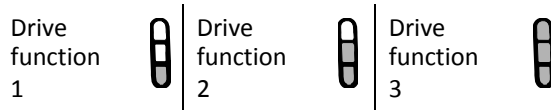
1. Press Drive function key **A**.

- 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.



2. Press Drive function selector keys **A** or **B** until desired drive function lights up.

- The Drive function indicator **C** shows the drive function.

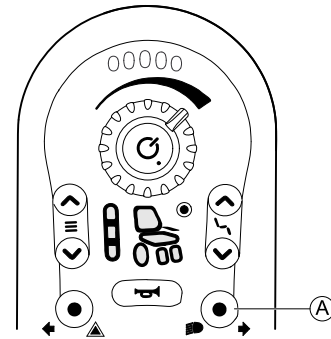


With the Drive function selector key you can choose between three different drive functions, that are configured by Invacare and can be fitted to your needs and requests by the provider.

3.8 Operating the lights

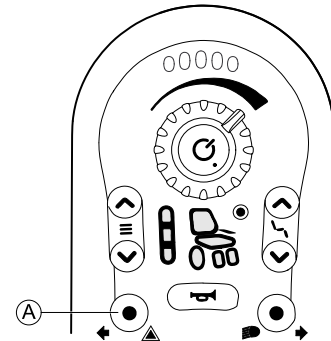


If you drive outside, turn on the lights under bad visibility conditions or darkness.



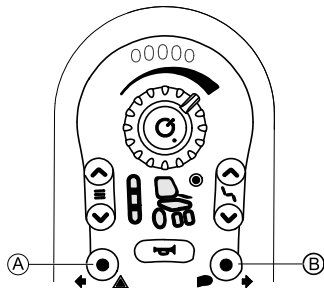
- Short press Light button **A**.
The lights are turned on or off.

3.9 Operating the hazard lights



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

3.10 Operating the direction indicators



Direction indicator left

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

Direction indicator right

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

3.11 Charging the batteries

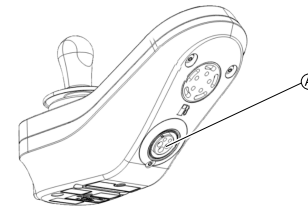


WARNING!

Risk of Injury, Damage or Death

Improper routing of charger cord(s) may cause tripping, entanglement or strangulation hazard that may result in injury, damage or death.

- Ensure all charger cord(s) are routed and secured properly.
- Close supervision and attention is needed when charging the wheelchair near children, pets or people with physical/mental disabilities.



1. Plug the battery charger into the remote's charger socket **A**.

If the remote is powered up, the battery gauge indicates the system is connected to the charger by cycling between a left-to-right chase sequence, and then displaying the approximate battery charge state at the end of the chase sequence.



Battery charge state 1

Red LED on.



Battery charge state 2

Red and one amber LED on.



Battery charge state 3

Red and two amber LEDs on.



Battery charge state 4

Red, amber and one green LED on.



Fully charged

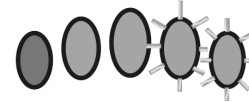
Green, green, amber, amber and red LEDs on.

The LiNX system does not have to be powered up when charging the batteries, however, if it is not powered up, the battery gauge does not indicate the charging state. For more information about the charging state, refer to the user manual of your charger.

For more information about the drive inhibit mode, refer to chapter 4.3 *Drive inhibit indication*, page 28.

3.11.1 Battery alarms

High voltage warning



The batteries are overcharged.

All LEDs on and the green LEDs flashing.

1. Disconnect battery charger.

Low voltage warning



The batteries are empty.

Only one red LED on and flashing.

1. Power down wheelchair.
2. Charge batteries immediately.

3.12 Connecting the remote



CAUTION!

Risk of unintended stops

If the plug of the remote cable is broken, the remote cable may come loose while driving. The remote could suddenly switch off when losing power. This forces an unintended stop.

- Always check the plug of the remote for damage. Contact your provider immediately in case of a damaged plug.



Risk of damage to the remote

The remote plug and connector socket fit together in one way only.

- Do not force them together.

1. Lightly push to connect the plug of the remote cable and the connector socket. The plug must lock in place with an audible click.

3.13 Attendant control unit (DLX-REM050)



The ON/OFF button of the attendant control unit is sealed with a label, which indicates to read the user manual of the remote before using the attendant control unit for the first time. You can remove the label after reading the user manual.



The attendant control unit is a component of the wheelchair's control system, intended to allow attendants to interact with the system. The attendant control unit allows the attendant to take control of drive function, as configured and connected within the wheelchair's control system.



Before using the attendant control unit for the first time, you should familiarize well with its operation. Invacare recommends to test the behavior of the attendant control unit without an occupant to avoid injury. When handing over to other attendants, they need a sufficient instruction as well.

When two remote modules are connected in the same system, both are capable of performing the same functions but only one of them has control of the system at any one time. While one remote is in charge, the other does not respond to any commands except for its ON/OFF button, which can always turn off the system.

Powering up

Either of the remotes can power up the system with their own ON/OFF button. The remote that powers up the system has control of the system (remote-in-charge). The other remote (remote-not-in-charge) has no control of the wheelchair except for its ON/OFF button, which can still be used to power down the system.

The system is automatically powered up in drive function one. As an attendant you cannot change the drive function. You can just control the maximum speed with the speed dial on the attendant remote.

Powering down

No matter which remote is in charge in the dual remote system, the wheelchair can be powered down by pressing the ON/OFF button on either remote.

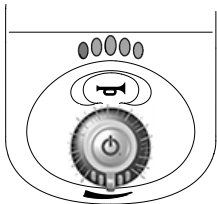
Changing who's in charge

To change which remote is in charge, power down the system with either remote, and then power up the system again with the remote that requires the control.

Remote-in-charge indication

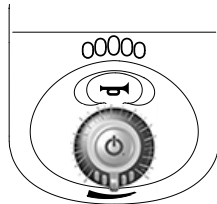
Remote-in-charge

All indicators, including the battery gauge displays as normal.



Remote-not-in-charge

The battery gauge is switched off and all other indicators operate normally.



Fault handling and indication

If a fault is present on one of the remotes in a dual remote system, the fault is indicated on both remotes.


If one of the remotes in a dual system is faulty, the system can be driven with the other remote. If, however, the ON/OFF button on the remote-in-charge has a fault, the system does not operate.

If one of the remotes is disconnected from the system when it is powered down, the remaining remote displays a fault (refer to Flash code 2 in chapter 4.1.1 *Fault codes and diagnosis codes, page 26*) when the system is powered up again to indicate that it was expecting two remotes in the system. To clear the fault, cycle the power with the ON/OFF button.

4 Troubleshooting

4.1 Fault diagnosis

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

-  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.

4.1.1 Fault codes and diagnosis codes

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 | Motor 1 ¹ fault | <ul style="list-style-type: none"> • Check cables and connectors. • Contact your provider. |
| 4 | Motor 2 ¹ 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 “Pushing the mobility device in freewheel mode” in the user manual of your wheelchair. • Contact your provider. |

| Flash code | Fault description | Possible action |
|------------|---|---|
| 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 “Pushing the mobility device in freewheel mode” 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. |

-
- 1 Configuration of the motors depending on the wheelchair model

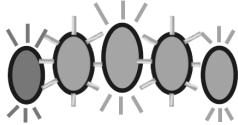
4.2 OON (“Out Of Neutral”)

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.

Drive OON warning

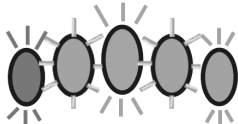


The joystick must be in the center position:

- 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



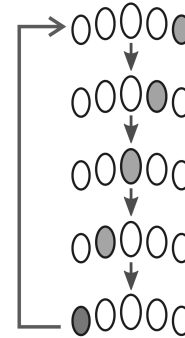
When a system is powering up or after a function change, no direct access switches can be active, otherwise a seating OON warning is displayed.

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.

4.3 Drive inhibit indication

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



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.

4.4 Cut-off voltage



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

- the status indicator flashes red (Flash code 2, refer to *4.1.1 Fault codes and diagnosis codes, page 26*),
- the red LED on the battery gauge flashes,
- the horn sounds once every ten seconds.

5 Technical Data

5.1 Technical specifications

Mechanical specifications

| Permissible operating, storage and humidity conditions | |
|--|---|
| Temperature range for operation according to ISO 7176-9: | <ul style="list-style-type: none"> • -25° ... +50 °C |
| Recommended storage temperature: | <ul style="list-style-type: none"> • 15 °C |
| Temperature range for storage according to ISO 7176-9: | <ul style="list-style-type: none"> • -40° ... +65 °C |
| Operating humidity range according to ISO 7176-9: | <ul style="list-style-type: none"> • 0 ... 90 %RH |
| Degree of protection: | IPX4 ¹ |

1 IPX4 classification means that the electrical system is protected against spray water.

| Operating forces | | |
|------------------|---|---|
| | DLX-REM050 | DLX-REM110/211/216 |
| Joystick | <ul style="list-style-type: none"> • 1.9 N | |
| Power button | <ul style="list-style-type: none"> • 2.5 N | |
| Speed dial | <ul style="list-style-type: none"> • 1.2 N | |
| Horn button | <ul style="list-style-type: none"> • 4.4 N | <ul style="list-style-type: none"> • 2.5 N |

Electrical specifications

| Parameter | Min. | Nominal | Max. | Units |
|--|-------------|----------------|-------------|--------------|
| Operating voltage (V _{batt}) | • 17 | • 24 | • 34 | • V |
| Idle current | - | • 56 | - | • mA at 24V |
| Quiescent current (power off) | - | - | • 0.23 | • mA at 24V |



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