

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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I General

I.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.

I.2 Symbols in this manual

In this manual warnings are indicated by symbols. The warning symbols are accompanied by a heading that indicates the severity of the danger.



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.

Tools:



This symbol identifies a list of various tools, components and items which you will need in order to carry out certain work. Please do not attempt to carry out the work if you do not have the listed tools available.

I.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.

I.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.



CAUTION!

Risk of injury and damage to mobility device due to improper or incomplete maintenance work

- Use only undamaged tools in good condition.
- Always use correctly-dimensioned washers and spacers.
- When reassembling, always replace any cable ties which were cut during dismantling.
- After completing your work / before renewed start-up of the mobility device, check all connections for tight fitting.
- After completing your work / before renewed start-up of the mobility device, check all parts for correct locking.
- Check all electrical components for correct function. Note that incorrect polarity can result in damage to the electronics.
- Always carry out a trial run at the end of your work.



CAUTION!

Risk of injury and damage to property, if the maximum speed reduction on a wheelchair with a lifter does not function correctly

- The wheelchair's control unit must reduce the maximum possible speed as soon as the lifter is raised.
- Test the maximum speed reduction for correct function after any maintenance work or modifications to the wheelchair.

**CAUTION!****Risk of injury due to improper retrofitting of electric adjustment options**

Retrofitting electric adjustment options is a fundamental change to the configuration and can have a negative impact on the driving characteristics and tipping stability of the wheelchair.

- Retrofitting may only be performed by trained Invacare dealers.

**CAUTION!****Risk of injury**

Any changes to the drive program can affect the driving characteristics and the tipping stability of the wheelchair.

- Changes to the drive program may only be carried out by trained Invacare dealers.
- Invacare supplies all mobility devices with a standard drive program ex-works. Invacare can only give a warranty for safe wheelchair driving behavior - especially the tipping stability - for this standard drive program.

**Risk of damage to the mobility device**

- There are no user-serviceable parts inside any case.
- Do not open or disassemble any case.



Mark all current settings for the mobility device (seat, armrests, backrest etc.), and the associated cable connecting plugs, before dismantling. This makes reassembly easier. All plugs are fitted with mechanical safety devices which prevent release of the connecting plugs during operation. To release the connecting plugs, the safety devices must be pressed in. When reassembling, ensure that these safety devices are correctly engaged.

Observe the following guidelines:

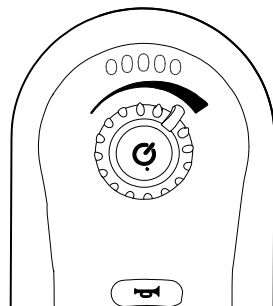
- It is the responsibility of the installer to make sure that accessories that are connected to the vehicle do not interfere with the operation of the controller.
- Correctly adjust all programmable options to suit the user before the vehicle is used.
- After you have configured the vehicle, check to make sure that the vehicle performs to the specifications entered in the programming procedure. If the vehicle does not perform to specifications, reprogram it. Repeat this procedure until the vehicle performs to specifications. If the desired operation cannot be achieved, contact Dynamic Controls.
- The dealer, therapist or other agent who supplies the vehicle to the end user has the responsibility to make sure that the vehicle is correctly configured for the needs of that user.
- For each individual user, the vehicle set up and configuration should take into consideration his or her: o technical knowledge, experience and education, and o medical and physical condition, including the level of disability and capability (where applicable).
- It is the responsibility of the therapist/installer to minimise all risks of use error, including those arising from ergonomic features and/or the environment in which the device is intended to be used.

- Prior to handing over the vehicle, make sure that users are fully able to operate the product by providing them appropriate training on functionality and safety features, and having them test-drive the vehicle in a safe area in the presence of their agent.
- Where any inconsistencies about chair status occur between the LiNX system and that reported by a programming tool, the user should take the status as reported by the LiNX system as correct.
- A LiNX Access Key is an intentional radio frequency (RF) transmitter. Before entering an RF-sensitive environment, unplug the LiNX Access Key from the remote module. Do not plug in the LiNX Access Key when in an RF-sensitive environment.
- It is the responsibility of the manufacturer, dealer, therapist, or other suitably trained personnel, to determine the most appropriate installation suitable for any single user. This includes, but is not limited to, the placement of the remote module for long-term, comfortable use.
- A user must not be in the wheelchair while adjustments are being made.

2 Components

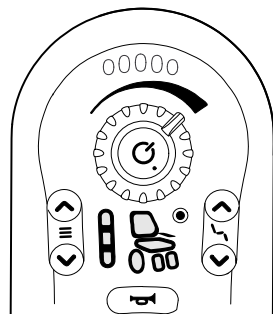
2.1 Overview

DLX-REM110



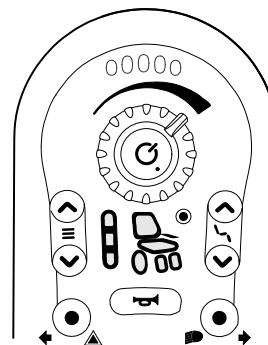
- Drive function

DLX-REM211



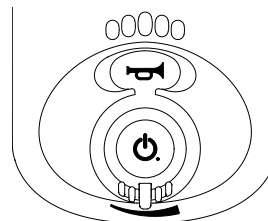
- Drive function
- Powered seating adjustments

DLX-REM216



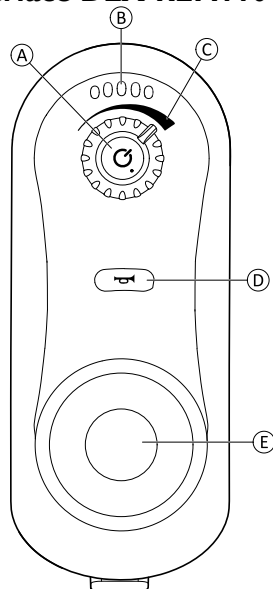
- Drive function
- Powered seating adjustments
- Light/Hazard lights

DLX-REM050



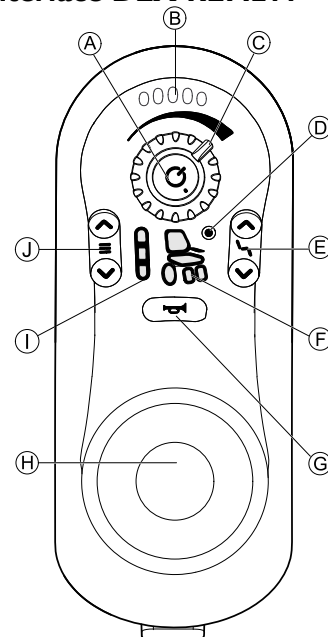
- Attendant dual control with drive function

2.2 User interface DLX-REM110



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

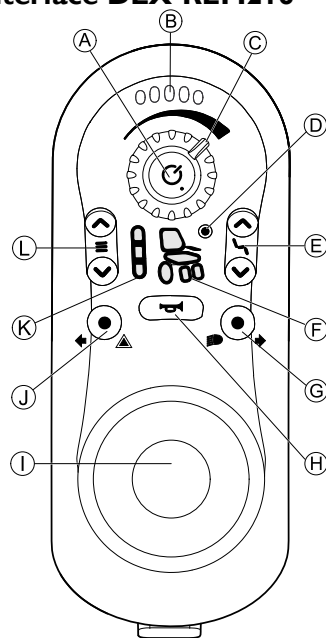
2.3 User interface DLX-REM211



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

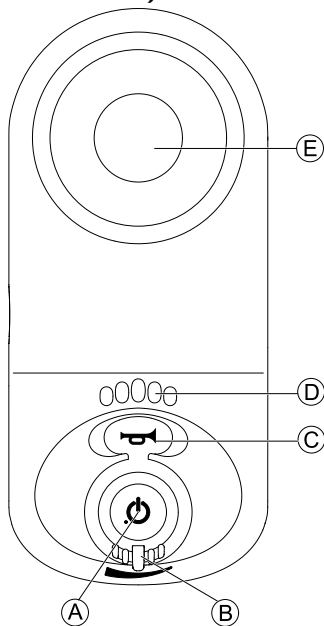
- Ⓒ Horn
- Ⓗ Joystick
- Ⓘ Drive mode indicator
- ⓵ Drive mode selector

2.4 User interface DLX-REM216



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

2.5 User interface DLX-REM050 (only as Attendant dual control)



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

2.6 The status indicator

The status indicator is located inside the ON/OFF key. 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 error. Refer to 4.1.1 Error 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

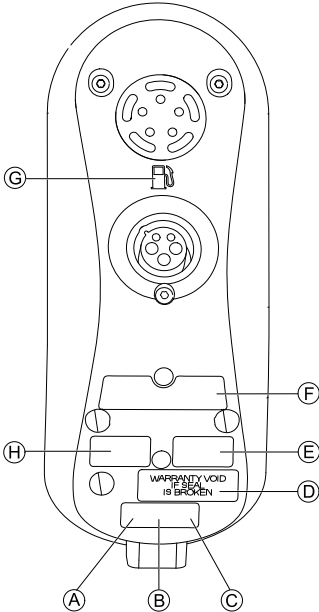
Red and one amber LED on.
Consider charging batteries.









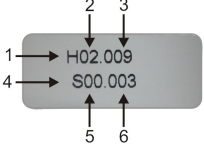
Very low driving range

Only red LED on.
Batteries need immediate charging.

2.8 Labels on the product



(A)	 READ INSTALLATION MANUAL BEFORE USE	Recommendation to read the instruction manual before using the module.
(B)	IPx4	This is the enclosure's ingress protection rating.
(C)		<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 wheeled 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.
(D)		Tamper evident seal.

E		<p>Product label containing:</p> <ul style="list-style-type: none"> Dynamic Controls' 'dynamic' logo Dynamic Controls' website address Dynamic Controls' part description
F		<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
G		<p>The petrol pump indicates the battery charger input.</p>
H		<p>Hardware and application firmware version label</p> <ol style="list-style-type: none"> Hardware version Hardware major version Hardware minor version Application version Application major version Application minor version

S/N: A14132800

The format, as shown above, is **MYynnnnnn**, 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.

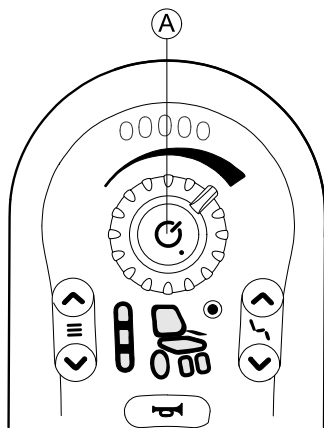
Serial number and date of manufacture

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.

3 Usage

3.1 Switching the remote on and off

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



Switching on the remote

1. Press the ON/OFF key **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 Error codes and diagnosis codes, page 26. If the fault is one that prevents the system from driving, the battery gauge flashes continuously.

Switching off the remote

1. Press the ON/OFF key **A**.
2. The system powers down and the status indicator switches off.

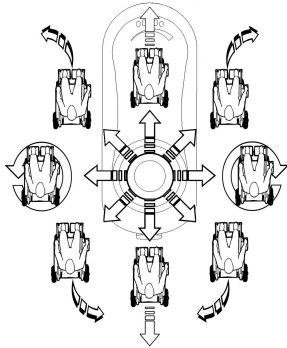
The ON/OFF key can also be used to perform an emergency stop, refer to 3.2 Emergency stop, page 15.

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

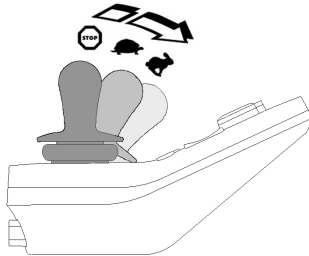
3.1.1 Using the joystick

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.



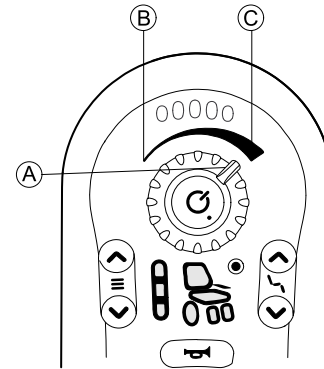
If the user moves the joystick back to the neutral position, the wheelchair slows down and stops.

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.

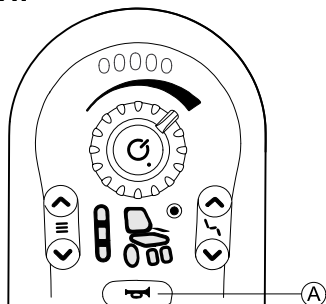


The speed dial (A) offers ten discrete steps between the lowest speed (B) and the highest speed (C).

3.2 Emergency stop

If you press the ON/OFF key while driving, an emergency stop is carried out. The remote only switches off after this.

3.3 The horn

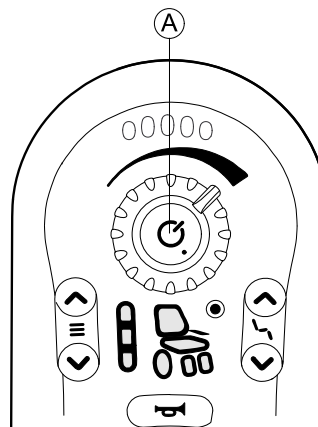


Press the horn button **A** to sound the horn. The horn sounds for as long as the horn button is pressed.

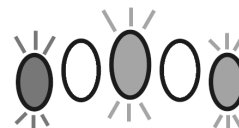
The horn button is also used for unlocking a locked system. Refer to 3.4 Locking/unlocking the remote, page 16.

3.4 Locking/unlocking the remote

Locking the remote

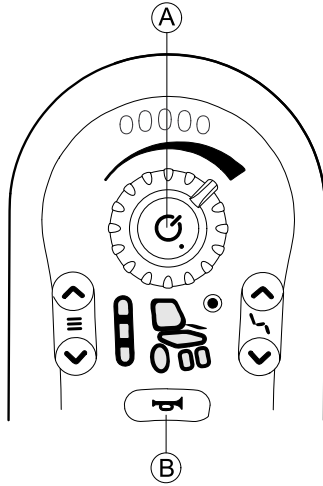


1. Press the ON/OFF key **A** for more than four seconds.



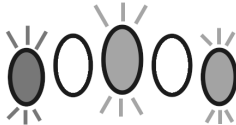
When entering the locked state, the battery gauge indicates the transition by flashing LEDs red, amber and green (far left, middle and far right) three times.

Unlocking the remote



1. Press the ON/OFF key ①.
2. Press the horn ② twice within ten seconds.

If you implement the unlock sequence incorrectly or press the ON/OFF key 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.



If an attendant dual control (DLX-REM50) is used, it is locked or unlocked, too.

You can also lock and unlock the system via the attendant dual control. When unlocking the system via the attendant dual control, the attendant dual control is in charge automatically.

3.5 The sleep mode

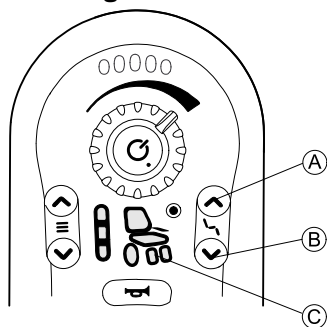
The sleep mode is no factory setting, but can be enabled by your provider. If this parameter is set On, the system goes into sleep mode after a period of time without user activity. This period of time can be set by the provider.

To wake the system from sleep, either press the ON/OFF key or move the joystick, if this parameter has been enabled by the provider.

3.6 Operating the powered seating adjustments

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

3.6.1 Activate seating mode



1. Press the Activate seating mode key (A).
 - The wheelchair changes to seating mode and the Drive/actuator status display (C) lights up amber.
2. Press the seating mode selector keys (A) and (B) or move the joystick left or right several times until the required adjustment option lights up. Refer to 3.6.2 Which symbols are displayed and what they mean, page 18.
3. Deflect the joystick to the front or rear to activate the 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 Which symbols are displayed and what they mean

Not every wheelchair has all options.



Powered seat tilt



Powered recline



Seat lifter



Left powered elevating legrest



Right powered elevating legrest



Both powered elevating legrests

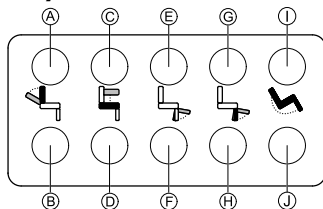


None



Unspecified

3.6.3 The 10 way switch module



- I. Press the button to move the particular actuator. The actuator moves as long as you hold the button.

- (A) Recline down
- (B) Recline up
- (C) Lifter up
- (D) Lifter down
- (E) Legrest left up
- (F) Legrest left down
- (G) Legrest right up
- (H) Legrest right down

- ① Tilt up
- ② Tilt down

3.6.4 Speed reduction and limit switches

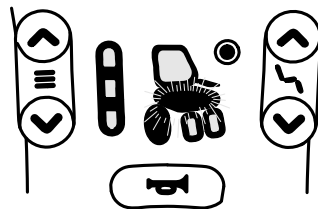


The mentioned speed reduction and limit switches do not apply to all Invacare wheelchair models.

Speed reduction

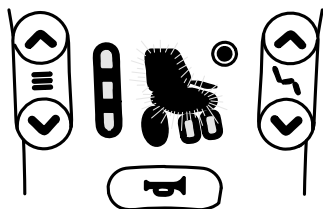
If the lifter has been adjusted above a certain point, the drive electronics considerably reduces the speed of the wheelchair. If speed reduction has been activated, drive mode can only be used to carry out movements in reduced speed and not for regular driving. To drive normally, adjust the lifter until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



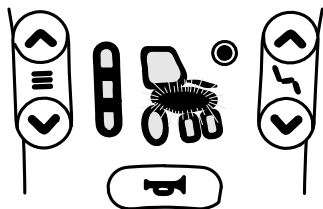
Tilt limit switch

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 flashing.

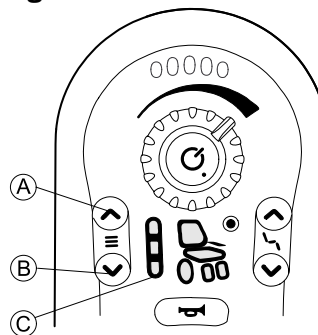


Lifter seat lockout switch

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 flashing.

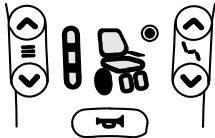


3.7 Activating the drive mode



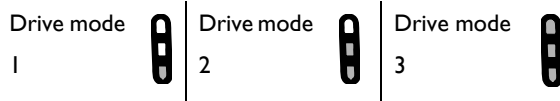
I. Press the Activate drive mode key (A).

- The remote switches to drive mode, the Drive mode indicator (C) shows the pre-selected drive mode (1, 2 or 3) and the wheel in the drive status display lights up green.



2. Press the Drive mode selector keys (A) or (B) until the required drive mode lights up.

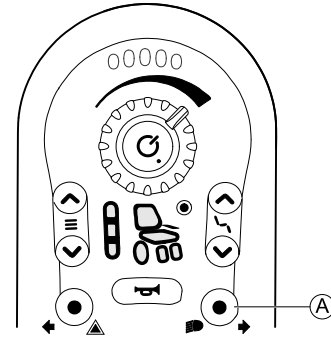
- The Drive mode indicator (C) shows the drive mode.



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

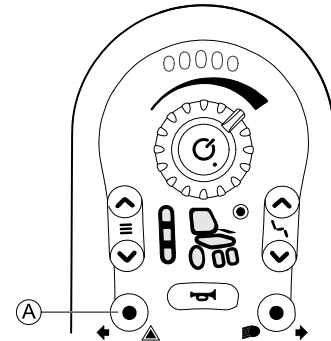
3.8 Switching the lights on and off

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



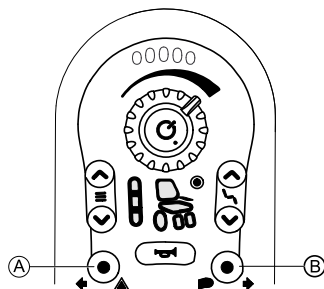
- I. Short press the Light key (A).
The light is switched on or off.

3.9 Switching the hazard lights on and off



- I. Short press the Hazard lights key (A).
The hazard lights are switched on or off.

3.10 Switching the direction indicators on and off



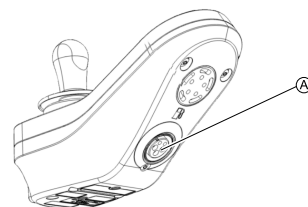
Direction indicator left

1. Press the Hazard lights key **A** for more than three seconds. The left direction indicator is switched on.
2. To switch off the direction indicator, short press the Hazard lights key again.

Direction indicator right

1. Press the Light key **B** for more than three seconds. The right direction indicator is switched on.
2. To switch off the direction indicator, short press the Light key again.

3.11 Charging the batteries



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

If the remote is powered on, 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.



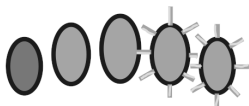
Fully charged

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

If the remote is powered off, the battery gauge does not indicate the charging state. For more information about the charging state, refer to the user manual of your charger.

3.11.1 Battery alarms

High voltage warning



The batteries are overcharged.

All LEDs on and the green LEDs flashing.

1. Disconnect the battery charger.

Low voltage warning



The batteries are empty.

1602969-B

Only one red LED on and flashing.

1. Switch the wheelchair off.
2. Charge the 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 dual control



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



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



Before using the Attendant dual control for the first time, you should familiarize well with its operation. Invacare recommends to test the behavior of the Attendant dual control 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 key, which can always turn off the system.

Powering up

Either of the remotes can power up the system with their own ON/OFF key. 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 key, which can still be used to switch off the system.

The system is automatically powered up in drive mode one. As an attendant you cannot change the drive mode. 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 key 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 exists 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 key 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 an error (refer to Flash code 2 in chapter 4.1.1 Error 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 remove the error, cycle the power with the ON/OFF key.

4 Troubleshooting

4.1 Error 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 switched on before starting any diagnosis.

If the status display is OFF:

- Check whether the drive electronics system is SWITCHED ON.
- 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 Error codes and diagnosis codes

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



The table below describes the error 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	Error description	Possible action
1	Remote error	<ul style="list-style-type: none"> • Check cables and connectors. • Contact your provider.
2	Network or configuration error	<ul style="list-style-type: none"> • Check cables and connectors. • Recharge the batteries. • Check charger. • Contact your provider.
3	Motor 1 ¹ error	<ul style="list-style-type: none"> • Check cables and connectors. • Contact your provider.
4	Motor 2 ¹ error	<ul style="list-style-type: none"> • Check cables and connectors. • Contact your provider.
5	Left magnetic brake error	<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	Error description	Possible action
6	Right magnetic brake error	<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 error (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.

I Configuration of the motors depending on the wheelchair model

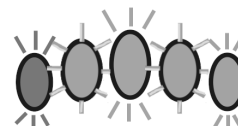
4.2 OONAPU (“Out Of Neutral At Power Up”)

OONAPU (“Out Of Neutral At Power Up”) is a safety feature that prevents accidental driving movements, when:

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

Drive OONAPU warning

If the system is powered up (or comes out of an inhibit state) while the joystick is not in the center position, a Drive OONAPU warning is displayed.

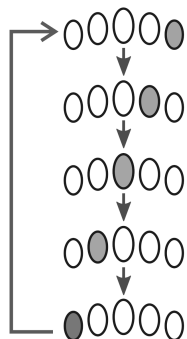


During a Drive OONAPU warning, the battery gauge LEDs and the drive wheel indicator (if fitted) flash continually (all on, followed by all off) to alert the user. In this state the wheelchair does not drive. If the joystick is returned to the center position within five seconds, the warning clears and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

Drive OONAPU fault

If the joystick remains out of neutral for longer than five seconds, a Drive OONAPU fault occurs. The fault is displayed by the battery gauge LEDs and the drive wheel indicator (if fitted) flashing continually and the status indicator flashing red. In this state the wheelchair does not drive. To clear the fault, return the joystick to the neutral position and power the system off and on again.

4.3 Drive inhibit indication

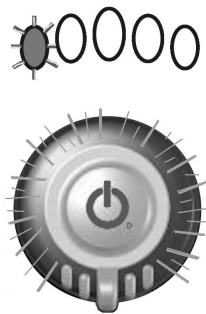


Drive inhibit mode is indicated by the battery gauge with a right-to-left chase sequence.

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

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

4.4 Cut-off voltage



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

5 Technical data

5.1 Technical specifications

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 ^I

Operating forces		
	DLX-REM050	DLX-REM110/211/216
Joystick	• 1.9 N	
Power button	• 2.5 N	
Speed dial	• 1.2 N	
Horn button	• 4.4 N	• 2.5 N

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

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



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