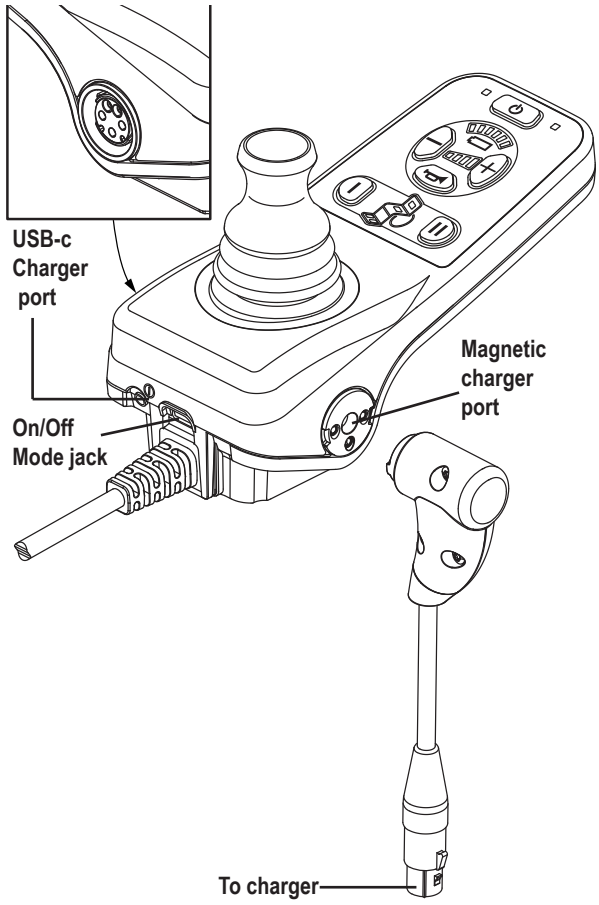
Q·LOGIC nes

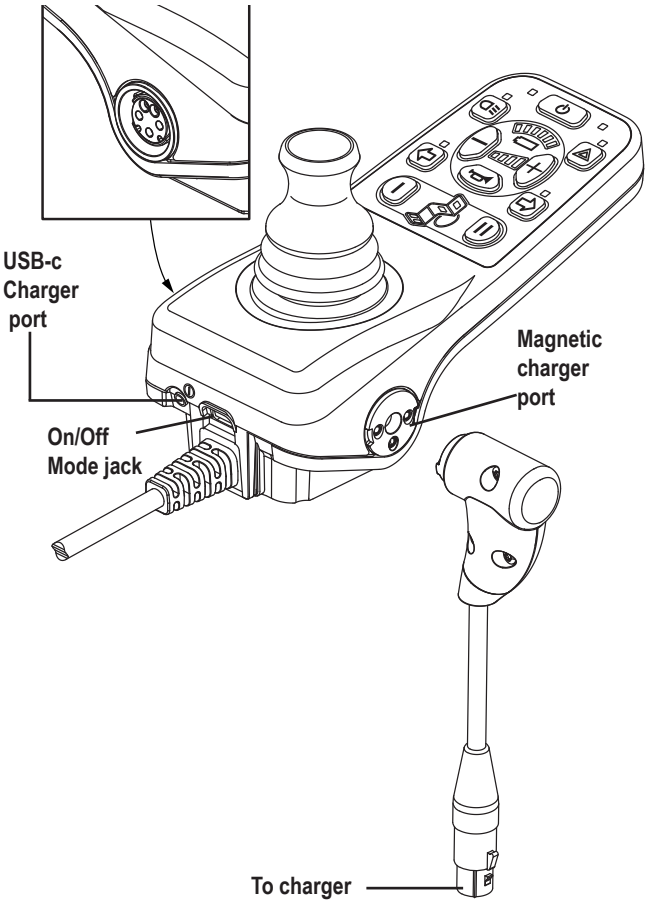
QUANTUM®

PROVIDING GREATER INDEPENDENCE

MAGNETIC CHARGER ADAPTER



6-key Joystick



10-key Joystick

⚠ WARNING!

Your controller is equipped with an XLR and magnetic port for charging the power chair. Do not use two chargers at the same time while charging your chair.

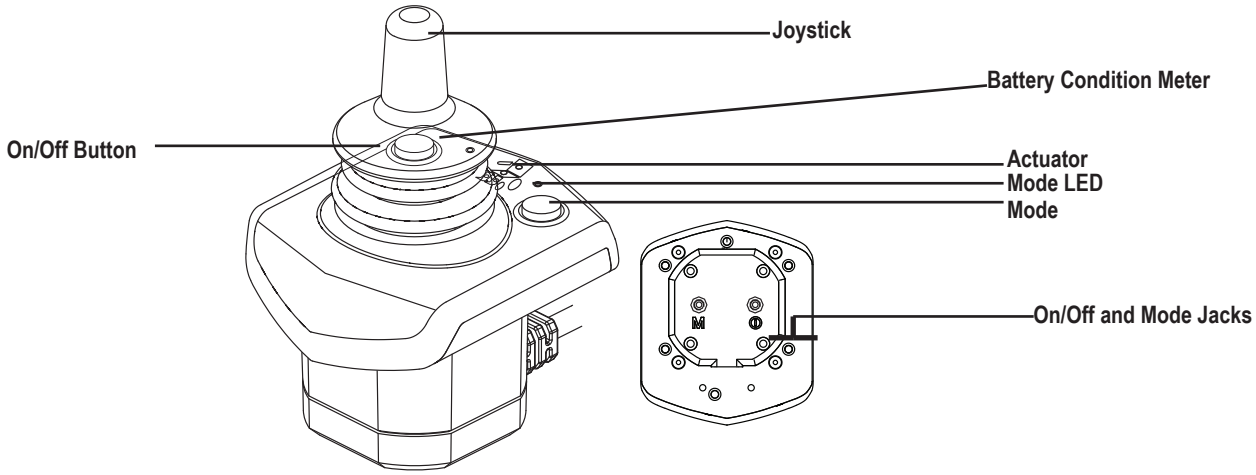
⚠ WARNING!

Maintain at least 6 in. (15 cm.) separation between magnetic charger connector and any implanted device.

ACN 088 609 661 CH REP

INFMANU5366/Rev A/August 2024

ATTENDANT CONTROL



Safety Guidelines

⚠ WARNING!

A Quantum Rehab Provider or a qualified technician must perform the initial setup of this product and must perform all of the instructions in this manual.

The symbols below are used throughout this owner's manual and on the power chair to identify warnings and important information. It is very important for you to read them and understand them completely.

⚠ WARNING!

Indicates a potentially hazardous condition/situation. Failure to follow designated procedures can cause either personal injury, component damage, or malfunction. On the product, this icon is represented as a black symbol on a yellow triangle with a black border.

MANDATORY!

These actions should be performed as specified. Failure to perform mandatory actions can cause personal injury and/or equipment damage. On the product, this icon is represented as a white symbol on a blue dot with a white border.

PROHIBITED!

These actions are prohibited. These actions should not be performed at any time or in any circumstances. Performing a prohibited action can cause personal injury and/or equipment damage. On the product, this icon is represented as a black symbol with a red circle and a red slash.

Intended Use

The intended use of this Pride Mobility Products device is to provide mobility assistance to persons with mobility impairment who have the capacity to operate a motorized mobility power chair in an indoor/outdoor environment.

Regarding Devices for Prescription Use

Our mobility products and their and components are available for sale either as retail ("over-the-counter") or with a prescription. When prescribed, the following statement is applicable.

⚠ WARNING!

CAUTION! Federal law restricts this device to sale by or on the order of a physician or other certified personnel licensed by the law of the State (US only) or region in which this personnel practices to use or order the use of the device.

NOTE: These instructions are compiled from the latest specifications and product information available at the time of publication. We reserve the right to make changes as they become necessary. Any changes to our products may cause slight variations between the illustrations and explanations in this manual and the product you have purchased. The latest/current version of this manual is available on our website.

NOTE: This product is compliant with WEEE, RoHS, and REACH directives and requirements.

NOTE: This product meets IPX4 classification (IEC 60529).

NOTE: The QLNES Controller and its components are not made with natural rubber latex. Consult with the manufacturer regarding any after-market accessories.

ADVISORY STATEMENT REGARDING CERTAIN COMPONENTRY INCORPORATED BY THIRD-PARTY MANUFACTURERS INTO FINISHED POWER CHAIRS: When power bases, seating systems, or other components are incorporated into a finished power chair manufactured or assembled by any third party, that third party is responsible to assure the safety, functionality, and legal compliance of the finished power chair. We make no representation concerning the safety, functionality, or legal compliance of the finished power chair or its componentry manufactured by a third party. While we make every effort to assure that our components are distributed responsibly, manufacturers, distributors, and consumers are reminded that finished power chairs must comply with a variety of standards and requirements for governmental safety and functionality.

If it is necessary to physically modify a power chair, including the addition of third-party componentry, to accommodate the medical needs of the power chair occupant, a risk assessment in conformance with ISO 14971, as outlined in ISO_7176, should be performed.

Changes to power chairs that are likely to affect conformance and risk evaluation include but are not limited to: moving the securement-point brackets; lowering the back-support height; shortening the seat length; adding secondary postural supports that are not firmly attached to the power chair; adding components that have sharp edges (i.e., edges with less than 0.08 in. [2 mm] radius); or any change that compromises the structural integrity of the power chair frame.

Table of Contents

Product Safety Symbols

The symbols below are used on the controller to identify warnings, mandatory actions, and prohibited actions. It is very important for you to read and understand them completely.

Read and follow the instructions in the owner's manual.

Avoid exposure to rain, snow, ice, salt, or standing water whenever possible. Maintain and store in a clean and dry condition.

EMI/RFI - This product has been tested and passed at an immunity level of 20 V/m.

Disposal and recycling - Contact your Quantum Rehab Provider for information on proper disposal and recycling of your Quantum product and its packaging.

The QLNES Controller

The QLNES Controller is a fully programmable, modular electronic controller system that allows you to operate your power chair. It is designed to allow the user to have complete control over chair movement and speed.

The controller has been pre-programmed to meet a typical user's needs. The program is set using either a personal computer with software provided by the controller manufacturer or with a hand -held programmer, also provided by the controller manufacturer.

⚠ WARNING!

The controller program can affect speed acceleration, deceleration, dynamic stability, and braking. If it is programmed incorrectly or outside of the safe limits as determined by your healthcare professional, it can create a dangerous situation. Only your Quantum Rehab Provider or a trained technician should program your controller.

Precautionary Guidelines

Before operating the QLNES Controller please read the following. These guidelines are provided for your benefit and will aid you in the safe operation of the seating system.

- Turn off the power to the controller before you are seated in your power chair.
- Always have assistance when you are being seated in your power chair.
- Follow all of the procedures and heed the warnings as explained in your power chair owner's manual and Consumer Safety Guide.

Operating the QLNES Controller

The QLNES hand control is used to operate your power chair and all of its components.

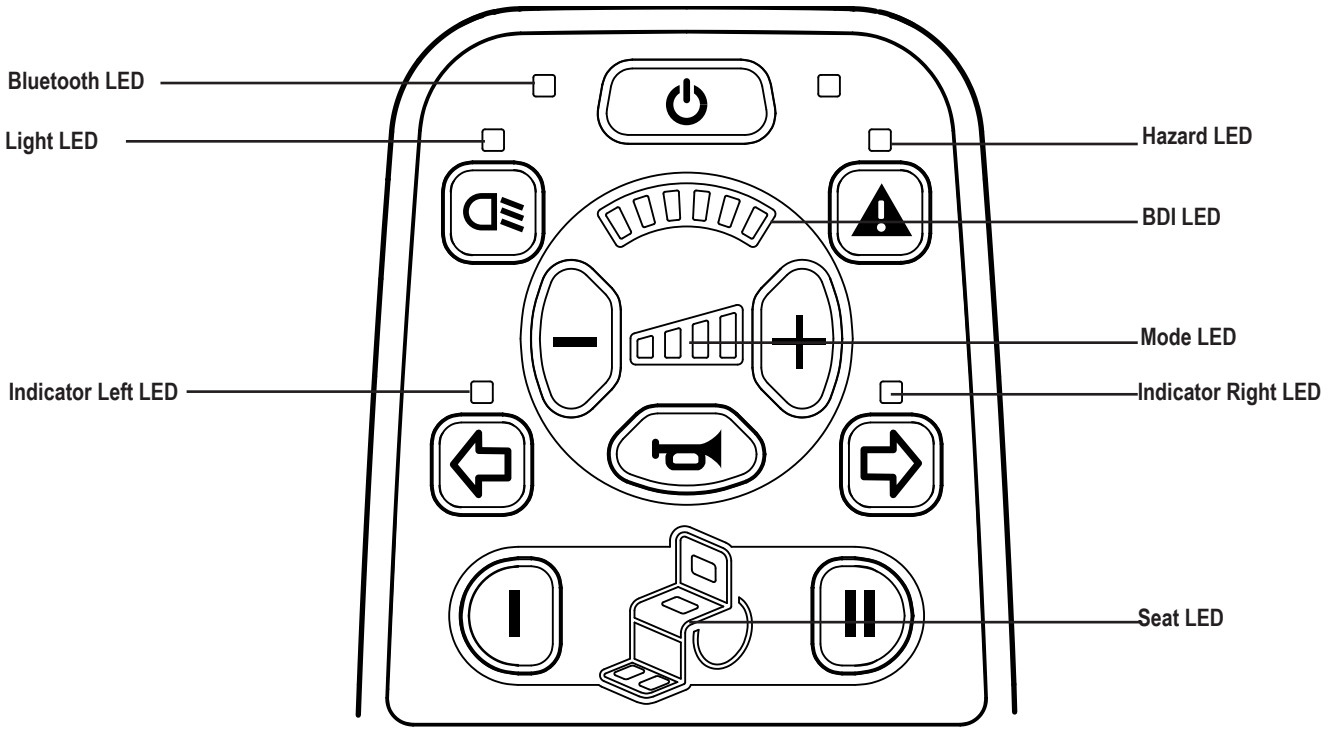
⚠ WARNING!

When faced with an emergency situation, release the joystick, then press the on/off to stop the power chair. Use caution. Be advised that pressing the on/off button may cause the power chair to stop abruptly.

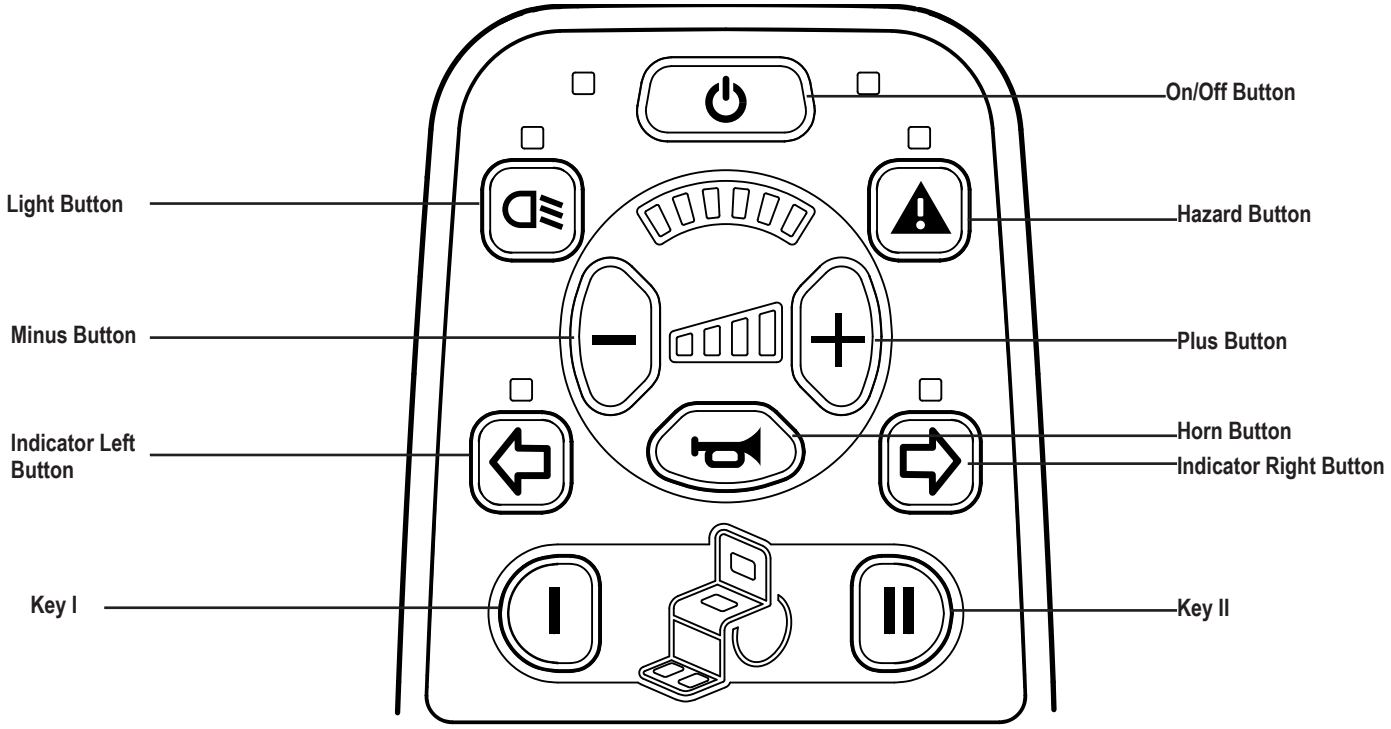
Always turn the power off when you are stationary to prevent unexpected movement.

Joystick

The joystick controls the driving speed and direction of the power chair and is used to navigate the menus on the screen. When the joystick is at rest, it is in the neutral (center) position and the chair is stationary. In order to drive the chair, the joystick must be taken out of neutral. Moving the joystick in any direction will switch the chair from neutral to drive, and the chair will move in the direction indicated by the joystick position. The farther away from the neutral position the joystick is, the faster the chair will move in that direction. To stop chair movement, simply release the joystick or move it back to the neutral position. The chair's electromagnetic brakes will engage after the chair has come to a controlled stop.



LED Indications



Button Indications

Figure 1. Key Pad Layout (10-key shown)

LED Screen
The screen provides the user with easily intuited feedback information such as battery condition, actuator indicators, power chair profile, warnings and error codes. **See figure 6.**

The charging and lights indicators are lit steadily when the corresponding function is active. When these indicators are flashing, the indicate the location of a problem. **See Error Codes.**

Keypad
The keypad is located directly in front of the joystick. It contains the components that you will use to control your power chair.

On/Off Button
The On/Off button is located directly at the top of the joystick. The On/Off button turns the controller on and off.

Horn Button
The horn button activates a warning horn.

Left/Right Turn Indicator
The left/right turn indicator button toggle either the left or right turn indicators.

Drive Profile Adjustment
The drive profile adjustment is used to navigate to different drive profiles on your power chair.

To change the drive profile:
1. Push the On/Off Button once to power on the chair and the controller.
2. To increase your profile, press the plus button.
3. To decrease your profile, press the minus button.

NOTE: Drive profiles are set by your Pride/Quantum Rehab Provider. Contact your Pride/Quantum Rehab Provider to change a drive profile or change speed settings.

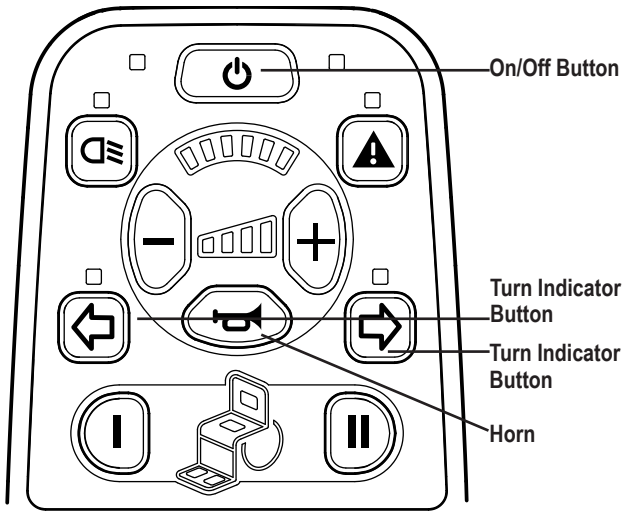


Figure 1. Horn and Indicators

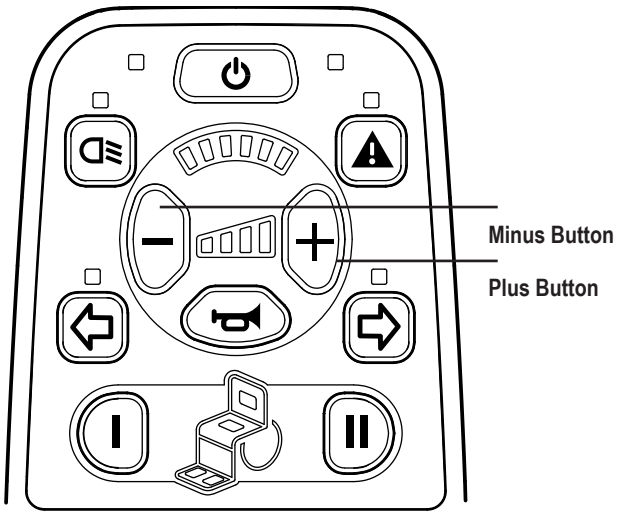


Figure 2. Drive Profile Buttons

Actuator Adjustment
The QLNES controller can control up to two actuators by using the I and II buttons; using the profile decrease button and/or the profile increase button and the joystick; using a switch in the mono jack; or using the attendant control. The active actuator is indicated by the darkened section of the seat on the display. **See figure 3.**

NOTE: You can simultaneously drive the power chair and operate the actuators until the actuator's preset drive lockout is reached.

To select an actuator using the I and II buttons:
1. Press the on/off button to power on the controller.
2. Press either the profile I or II button until you reach actuator mode.
3. Push the joystick to the right or left to cycle through the available actuators. The actuator indicators will display which actuator is activated.
4. When the desired actuator is selected, give a forward command to the joystick to lower the actuator or give a reverse command to the joystick to raise the actuator.

NOTE: Function of the mono jack on the joystick is set by your Pride/Quantum Rehab Provider. Contact your Pride/Quantum Rehab Provider to change the function of the jack. (For two actuators, a splitter harness will be needed.)

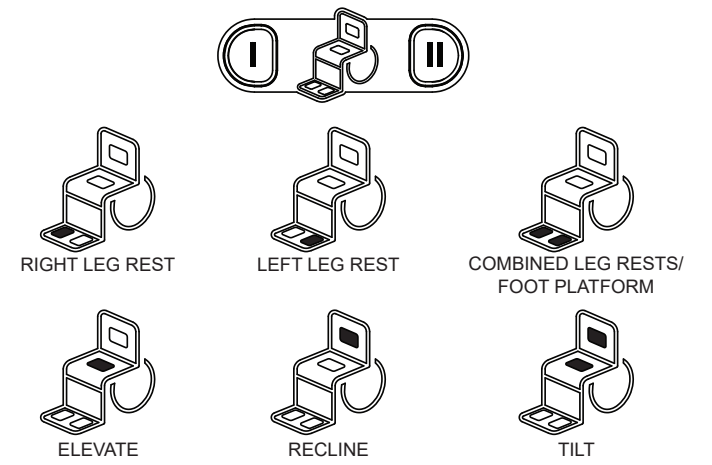


Figure 3. Actuator Selection

Battery Condition Meter
The battery condition meter consists of a 6-segment LED display. As the battery voltage drops, the number of lights reduces from right to left. When the leftmost battery gauge segment begins to flash, the batteries are nearly fully depleted and must be recharged immediately.

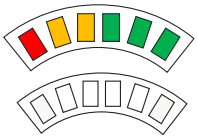
- **Leftmost Segment Flashing: T**he battery charge is low; charge the batteries as soon as possible.
- **Left/Right Ripple of Segments with Charging Plug:** The controller is in charging mode.
- **All or No Segments Flashing Quickly (Code):** The controller has detected a fault; refer to the Error Code table.

BDI LED shall show the BDI status
$Green_3$:>= 90%
$Green_2$:>= 70%
$Green_1$:>= 50%
$Yellow_2$:>= 30%
$Yellow_1$:>= 10% (area of critical charge)
Red $\leq$ = 10%

* Critical charge indicates that the batteries will soon be depleted. Pride/Quantum recommends charging the batteries as soon as possible when critical charge is reached.

⚠ WARNING!

When the battery gauge reaches the yellow status please charge the batteries.



Mode and Seat LEDs shall light up according to user setup (e.g. default or last profile before power off).

All other LEDs: OFF

Right/Left Turn Indicator Buttons (for Optional Equipment)
The right/left turn indicator buttons toggle either the left or right turn indicators. Press once to turn on and press again to turn off. You can also turn off the selected turn indicator by pressing the opposite indicator button or the hazard button.

Light Button (for Optional Equipment)
The light button turns the headlights/taillights on and off independent of other indicators.

Hazard Button (for Optional Equipment)
The hazard key activates both turn indicators at the same time. You can cancel this only by pressing the hazard button again.

Lock/Unlock Procedure
The QLNES Controller can have a feature enabled that allows you to “lock out” unauthorized users.

NOTE: The lock-out feature is not programmed at the factory. To have this feature added, contact your Quantum Rehab Provider.

To lock the controller:
1. Press and hold mode keys I or II until the system shuts off. **See figure 4.**
2. The system is now locked.

NOTE: When the system is turned on and the system is locked, the battery condition meter will scroll. See figure 5.

To unlock the controller:
1. Push the On/Off Button once to power on the chair and the controller.
2. Move the joystick to the full forward position until you hear a beep.

NOTE: This will take several seconds.

3. Move the joystick to the full reverse position until you hear a beep.

NOTE: This will take several seconds.

4. Release the joystick. The controller is now unlocked.

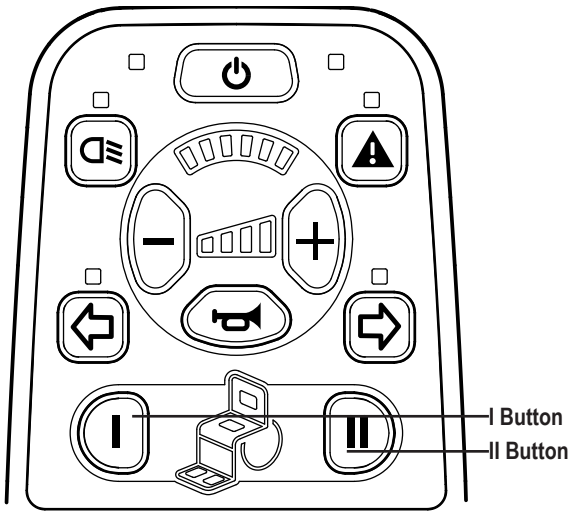


Figure 4. Button I and II

The two middle LEDs (yellow and green) shall blink with 1 Hz alternatively.

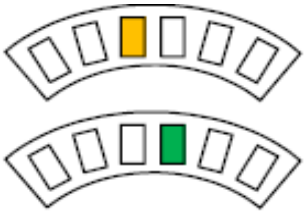


Figure 5. Lock Indicator

When the lock mode is over, the Battery Condition Meter LEDs shall show the current battery status.

Off-Board Charger/Programming Socket
You may use an off-board charger to charge the power chair batteries through the 5-pin socket located on the side of the QLNES controller. If you use an off-board charger, the charger current should not exceed 8 amps. Contact your Pride/Quantum Rehab Provider for more information.

USB Charging Port
The QLNES hand control includes a USB-c port for charging small devices.

The USB port will output up to 5V 3A continuous Amps depending on the adapter

The QLNES system includes Bluetooth that can be used to program the QLNES electronics.

If a programmer is connected to the power chair, the QLNES screen will ask to accept Bluetooth access by programming device.

To accept the Bluetooth connection, perform a forward command on the power chair's input device.

Interactive Assist
The Interactive Assist uses the QLNES bluetooth connection to allow your provider access to the QLNES Diagnostic information. The connection requires the user to accept access similar to the Bluetooth programming. Refer to the Interactive Assist manual for details.

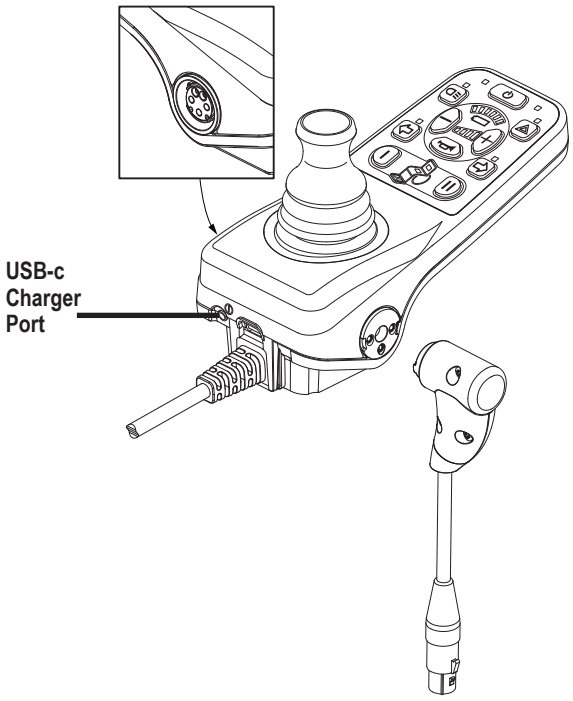


Figure 6. USB Charging Port

Attendant Control Joystick

For more information on this application, contact your Pride/ Quantum Rehab Provider.

The Attendant Control is for use by an ambulatory attendant and has the following controls:

- On/Off Button
  Enables/disables power
- Battery Condition Meter
  Indicates battery charge
- Actuator LEDs
  Indicates actuators in use
- Mode LED
  Used for profile selection
- Mode Button
  Cycle through Drive Profiles and Seat Mode (if equipped)
- Joystick
  The joystick controls speed and direction in Drive mode. Push the joystick to the right to select actuators in Seat mode. Move the joystick forward or backward to activate the desired actuator(s).
- On/Off and Mode Jacks
  Allow for remote On/Off and Mode switch installations

NOTE: When in use, the Attendant Control overrides hand control commands.

Battery Condition Meter

The battery condition meter is in front of the joystick on the controller and as an LED on the Attendant Control.

Figure 8. Battery Condition Meter

Care and Maintenance
Refer to your power chair owner's manual for proper cleaning and disposal instructions.

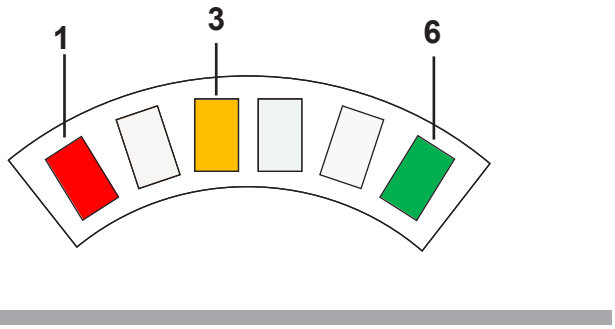
Temperature
Some parts of your power chair are susceptible to extreme changes in temperature. Always keep your power chair between the temperature of 18°F (-8°C) and 122°F (50°C).

Thermal Rollback
The QLNES controller is equipped with a thermal rollback circuit which monitors the temperature of the chair's motors and controller. If either exceeds the safe operating temperature, the controller reduces the output to 20% of full operation level. This reduces the chair's speed and allows a cool down period. Once the temperature returns to a safe level, the chair will resume normal operation.

Warranty
Refer to your power chair owner's manual for specific information on controller warranty.

Definition of Error Indicators

Display or error numbers
- LED 1 (Red) represents digit 1
- LED 3 (Yellow) represents digit 2
- LED 6 (Green) represents digit 3



Each digit blinks 'n' times to represent a fault code#, which is already relevant in the system today. For n=0 on any digit, there is no flashing for that corresponding digit, no additional pause time, etc. The blink frequency is 0.5s on/off consistently.

Example System needs to report fault code #208:
- LED 1 (Red) blinks 2 times
- LED 6 (Green) blinks 8 times

Only one fault is reported at a time.

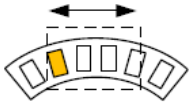
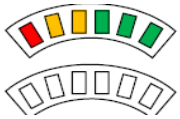
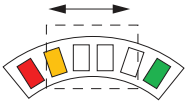
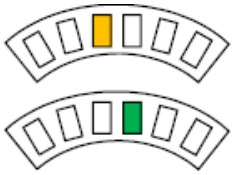
If the fault shown is resolved, a power cycle will be needed and the next fault is shown repeatedly until all faults are cleared.

Which errors will be shown can be configured separately for HCB in EDES. Using this table, all levels can be configured to be shown as errors.

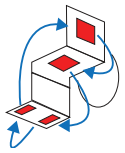
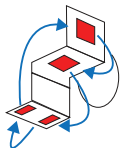
Display of warnings:
Recoverable warnings that are not included to the list of displayable error codes as described in Display of error numbers will acoustically give the error beep (as in Q3 HE) and the 2 yellow Battery Condition Meter LED shall flash for at least 4 seconds with a frequency of 1 Hz. In case of multiple warnings, just one is displayed (no short sequence). After the signalization, the LEDs go back to Battery State of Charge. Warnings can be repeated every minute as long as active.

Error Code	Description (programming device)	Help text (programming device)
1	Error: Motor 1 not connected	Motor 1 error detected. 1. Turn power off. 2. Inspect motor connections. 3. Turn power on.
2	Defect: Motor 2 not connected	Motor 2 error detected. 1. Turn power off. 2. Inspect motor connections. 3. Turn power on.
3	Error: Brake 1 not connected	Brake 1 error detected. 1. Turn power off. 2. Disengage then re-engage brake lever. 3. Inspect motor connections. 4. Turn power off.
4	Error: Brake 2 not connected	Brake 2 error detected. 1. Turn power off. 2. Disengage then re-engage brake lever. 3. Inspect motor connections. 4. Turn power off.
20	Error: Undervoltage	Charge Battery.
21	Error: Overvoltage	Check the battery voltage. Batteries may be overcharged. Avoid driving downhill fast with fully charged batteries.
23	Error: Motor 1 output defect	Motor 1 error detected. 1. Turn power off. 2. Inspect motor connections. 3. Turn power on.
24	Error: Motor 2 output defect	Motor 2 error detected. 1. Turn power off. 2. Inspect motor connections. 3. Turn power on.
25	Error: Brake 1 error	Brake 1 error detected. 1. Turn power off. 2. Disengage then re-engage brake lever. 3. Inspect motor connections. 4. Turn power on.
26	Error: Brake 2 error	Brake 2 error detected. 1. Turn power off. 2. Disengage then re-engage brake lever. 3. Inspect motor connections. 4. Turn power on.
32	Error: Speed reduction (Overtemperature)	Chair speed is reduced to protect system electronics. 1. Turn power off to let system cool down. NOTE: This is the normal system behavior.
34	Error: Joystick not centered	Joystick deflected at power up. 1. Turn power off. 2. Release joystick to neutral position. 3. Turn power on.
35	Defect: Joystick out of center	Joystick deflected at power up. 1. Turn power off. 2. Release joystick to neutral position. 3. Turn power on.
46	Defect: Bluetooth not working	Bluetooth error detected. Please reboot system. 1. Turn power off. 2. Wait 5 seconds. 3. Turn power on.
47	Defect: Suspension lock not engaged - Seek level ground	Suspension lock not engaged. 1. Seek level ground. 2. Check suspension lock mechanism.

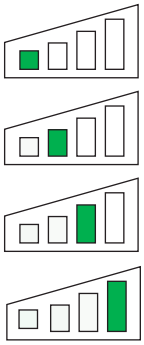
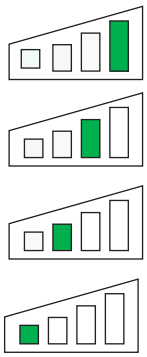
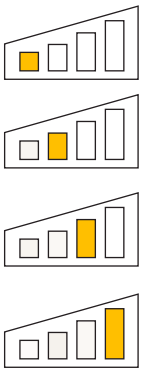
Power

Use Case	Trigger	Precondition	LEDs
Regular startup	Press ON/OFF button	Power is OFF	- Outer right green LED shortly lit -All LEDs shall turn ON for one second.
Splash screen	-Follows QLNES regular startup	Power is ON	BDI LED: -The left red and right green shall be turned OFF. -While the splash screen is in progress the 4 middle LEDs shall show a moving sequence of one by one LED:
Ready (power on/step 2)	-Startup (step1) finished	Power is ON	- BDI LED shall show the BDI status $Green_3$:>= 91% $Green_2$:>= 71% $Green_1$:>= 51% $Yellow_2$:>= 31% $Yellow_1$:>= 16%  **⚠WARNING!** When the battery gauge reaches the yellow status please charge the batteries.  Red:>=8% Red blinking >= 0% -Mode and Seat LEDs shall light up according to user setup (e.g. default or last profile before power off). All other LEDs: OFF
Charging	-Charger connected	Power is ON	-If system is switched on, the LED of the battery indication representing the current state of charge shall blink at a frequency of 1 Hz while the charger is connected 
Switch QLNES OFF	Press ON/OFF button	-Power is ON	-All other LEDS: OFF
Lock mode	- Switch HCB ON	- Power is ON	BDI LED: - The 2 middle LEDs (yellow and green) shall blink with 1 Hz alternatively.  When the lock mode is over, the BDI LEDs shall show the BDI function

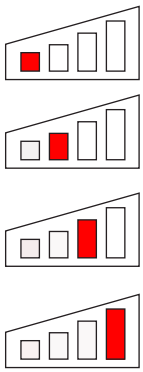
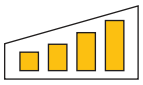
Seat

Use Case	Trigger	Precondition	LEDs
Select actuator	Deflect joystick to the right	- Power is ON - Seat mode is active	Next seat actuator LED per below direction shall be turned ON and the previous turned OFF:  Multiple LED's can be active depending on the seat configuration
Select actuator	Deflect joystick to the left	- Power is ON - Seat mode is active	Next seat actuator LED per below direction shall be turned ON:  Multiple LED's can be active depending on the seat configuration
Move actuator(s)	Deflect joystick forward	- Power is ON - Seat mode is active	- unchanged (LED of selected actuator is ON, multiple LED's can be active depending on the seat configuration)
Move actuator(s)	Deflect joystick backward	- Power is ON - Seat mode is active	- unchanged (LED of selected actuator is ON, multiple LED's can be active depending on the seat configuration)
Change from drive mode to seat mode	Press either Key I or Key II	- Power is ON - Drive mode is active	All mode LED's shall turn OFF and the corresponding seat LED's ON
Change from seat to drive mode	Press either Key I or Key II	- Power is ON - Seat mode is active	All seat LED's shall turn OFF and the corresponding mode LED's ON

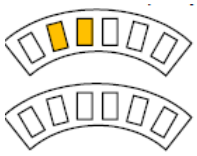
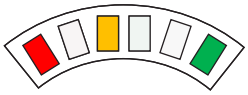
Drive Mode

Use Case	Trigger	Precondition	LEDs	
Increment drive speed	Press plus button	- Power is ON - Drive Mode is active	Increment drive mode. At 4 it shall jump to 1	
				Drive Mode1 Drive Mode 2 Drive Mode 3 Drive Mode 4
Decrement Drive mode	Press minus button	- Power is ON - Drive mode is active. - No drive restriction is active. - No drive lockout is active.	Decrement drive mode. At 1 it shall stay at one	
				Drive Mode 4 Drive Mode 3 Drive Mode 2 Drive Mode 1
Drive restriction	Drive restriction detected by system.	- Power is ON - Drive mode is active. - Drive restriction is active. - No drive lockout is active.	Profile number in yellow	
				Drive Mode 1 Drive Mode 2 Drive Mode 3 Drive Mode 4

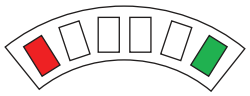
Drive Mode

Use Case	Trigger	Precondition	LEDs
Drive lockout	Drive lockout detected by system.	- Power is ON - Drive mode is active. - Drive lockout is active. Profile	Profile number in red  Drive Mode 1 Drive Mode 2 Drive Mode 3 Drive Mode 4
iLevel	iLevel is activated	- Power is ON - Drive mode is active. - iLevel is active	- Profile number in green but blinking at 1Hz with duty cycle 75%
Suspension Lock	Suspension lock not engaged while elevated	- Power is ON - Drive mode is active. - Suspension lock is not engaged when elevated	-Profile number in orange blinking at 1Hz with duty cycle 75%.
Rescue Drive	Rescue drive activated by system	-Power is ON	All four mode LEDs shall blink orange in 2Hz frequency 

Display of warnings

Use Case	Trigger	Precondition	LEDs
Warning	Error detected by system	-Power is ON	The 2 yellow BDI LED flash for 4 seconds with a frequency of 1 Hz. 
Stop Error	Stop error detected by system	- Power is ON	LED 1 (Red) represents digit 1 LED 3 (Yellow) represents digit 2 LED 6 (Green) represents digit 3 Each LED blinks n times with a frequency of 1Hz 
Test verso pm	Firmware with test version flag	-Power is ON	Show test version indication according to error stop rules one time at startup.

Bluetooth

Use Case	Trigger	Precondition	LEDs
BT not active	n/a	- Power is ON - BT is not active	Bluetooth LED shall be turned OFF
Enable BT and pairing mode	Press ON/OFF button for 3s	-Power is ON -BT is active	Bluetooth LED shall blink in the frequency of 1Hz.
Accept programmer access	Deflect joystick forward	-Bluetooth is paired	As soon as the pairing is established, the BDI LED's shall show following indication.  It shall signalize if the user is agree with read/write access.
Active BT connection	BT pairing accepted	-Power is ON -HCB has an active connection to another device	Bluetooth LED shall turn ON

Attendant Control

Use Case	Trigger	Precondition	LEDs
AC is set as input device	Press ON/OFF button on AC	HCB is input device	For a short moment the system changes in splash screen, afterwards the LEDs shall remain as before. The horn, plus, minus, Key I and Key II button shall be disabled. The hazard, light, indicator left, indicator right and ON- OFF button shall be still enabled and their function active.
Change drive mode on AC	Press mode button on AC	AC is input device	Drive mode LEDs on QLNES shall correspond with current AC drive mode selection.
Change from drive to seat mode	Press mode button on AC	In highest configured drive profile	LEDs change over to seat, drive profile not lit.
Change from seat to drive mode	Press mode button on AC	In seat	LEDs change over to drive, seat function not lit.
Select seat actuator on AC	Deflect joystick right or left on AC	Ac is input device system is in the seat context	Actuator seat LEDs on QLNES shall correspond with current AC seat actuator selection and indication

Electromagnetic and Radio Frequency Interference (EMI/RFI)

NOTE: This product has been tested for Electromagnetic and Radio Frequency Interference (EMI/RFI) and has met standard requirements. Please refer to the Consumer Safety Guide for more information regarding EMI/RFI. Although we do not recommend using a cell phone while operating a power chair, the system is capable of receiving and/or making calls through a cell phone device, accessing music files or contact lists, and navigating a device menu.

Bluetooth Electronic Specifications

Bluetooth Output Power	10 mW
Operation Range	40 m LOS (Line of Sight)
Operating Temperature	-40°F to 185°F / -40°C to 85°C
Storage Temperature	-67°F to 302°F / -55°C to 150°C
RF Wireless Technology Type	Co-existence with IEEE 802.11 (AWMA, AFH)
Encryption Security	128-bit

EMC Testing on Sample Wheelchair

Susceptibility	Tested to 20V/m to IEC 61000-4-3
Emissions	To CISPR11, Group 1, Class B
ESD	To IEC 610000-4-2

FCC ID

FCC ID:	T7V1326C2
IC:	216Q-1326C2

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