

**PRIDE**<sup>®</sup>  
MOBILITY

*Basic Operation Instructions*



**newVSI™ Controller**

## Safety Guidelines

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**WARNING!** An authorized Pride 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 product 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 red slash.

**NOTE:** *This owner's manual is 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:** *This product and its components are not made with natural rubber latex. Consult with the manufacturer regarding any after-market accessories.*

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### Product Safety Symbols

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.



**Read and follow the information 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 authorized Pride Provider for information on proper disposal and recycling of your Pride product and its packaging.**



**Use correct tie-down points for controller harness to prevent the harness from getting caught in the drive tires, pinched in the seat frame, or damaged when passing through doorways.**

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WELCOME to Pride Mobility Products. The product you have purchased combines state-of-the-art components with **safety**, comfort, and styling in mind. We are confident that the design features will provide you with the conveniences you expect during your daily activities. Understanding how to **safely** operate and care for this product should bring you years of trouble-free operations and service.

**Read and follow** all instructions, warnings, and notes in this manual before attempting to operate your product for the first time. You must also read all instructions, warnings, and notes contained in any supplemental instructional booklets for the controller, front riggings, and/or seating system that accompanied your power chair before initial operation. Your **safety** depends upon you, as well as your provider, caretaker, or healthcare professional in using good judgement.

This manual is to be used in addition to the power base owner's manual that came with your power chair. If there is any information in this manual which you do not understand, or if you require additional assistance for setup or operation, please contact your authorized Pride Provider. **Failure to follow the instructions, warnings, and notes in this manual and those located on your Pride product can result in personal injury and/or product damage and will void Pride's product warranty.**

### **Purchaser's Agreement**

By accepting delivery of this product, you promise that you will not change, alter, or modify this product or remove or render inoperable or unsafe any guards, shields, or other safety features of this product; fail, refuse, or neglect to install any retrofit kits from time to time provided by Pride to enhance or preserve the safe use of this product.

***NOTE: If you ever lose or misplace your copy of this manual, contact us and we will be glad to send you a new one immediately.***

## newVSI Controller

The newVSI Controller is a fully programmable, integral 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 the power chair manufacturer, an authorized representative of the manufacturer, or a trained service technician should program the controller.

## Precautionary Guidelines

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

- Turn off the power to the controller when transferring to or from your power chair.
- Follow all of the procedures and heed the warnings as explained in your power chair owner's manual.

## Electromagnetic and Radio Frequency Interference (EMI/RFI)



**WARNING!** Laboratory tests have shown that electromagnetic and radio frequency waves can have an adverse effect on the performance of electrically powered mobility vehicles.

Electromagnetic and Radio Frequency Interference can come from sources such as cellular phones, mobile two-way radios (such as walkie-talkies), radio stations, TV stations, amateur radio (HAM) transmitters, wireless computer links, microwave signals, paging transmitters, and medium-range mobile transceivers used by emergency vehicles. In some cases, these waves can cause unintended movement or damage to the control system. Every electrically powered mobility vehicle has an immunity (or resistance) to EMI. The higher the immunity level, the greater the protection against EMI. This product has been tested and has passed at an immunity level of 20 V/m.



**WARNING!** Be aware that cell phones, two-way radios, laptops, electricity generators or high power sources and other types of radio transmitters may cause unintended movement of your electrically powered mobility vehicle due to EMI. Do not turn ON hand-held personal communication devices, such as citizens band (CB) radios and cellular phones, while the powered wheelchair is turned on. Be aware of nearby transmitters, such as radio or TV stations, and avoid coming into close proximity to them.



**WARNING!** The addition of accessories or components to the electrically powered mobility vehicle can increase the susceptibility of the vehicle to EMI. Do not modify your power chair in any way not authorized by Pride.

**WARNING!** The electrically powered mobility vehicle itself can disturb the performance of other electrical devices located nearby, such as alarm systems.

**NOTE:** For further information on EMI/RFI, go to the Resource Center on [www.pridemobility.com](http://www.pridemobility.com). If unintended motion or brake release occurs, turn your controller off as soon as it is safe to do so. Contact your authorized Pride Provider to report the incident.

## **newVSI Controller Features**

**Figure 1** provides information on the newVSI components and connections. Use this diagram to familiarize yourself with the function and location of each component before using the newVSI Controller.

### **The following functions are available with the newVSI Controller:**

- Joystick Control

The joystick is used to control the direction and speed of the power chair.

- Drive Profile Selection

The user can select from available drive profiles, if programmed.

- Speed Adjustment

The user can increase or decrease the maximum speed of the power chair, if programmed.

- Sleep Mode

This feature is designed to preserve battery charge, and can be disabled through programming.

- Thermal Rollback

This is a safety feature designed to prevent the power chair from overheating and causing damage to the motors or controller.

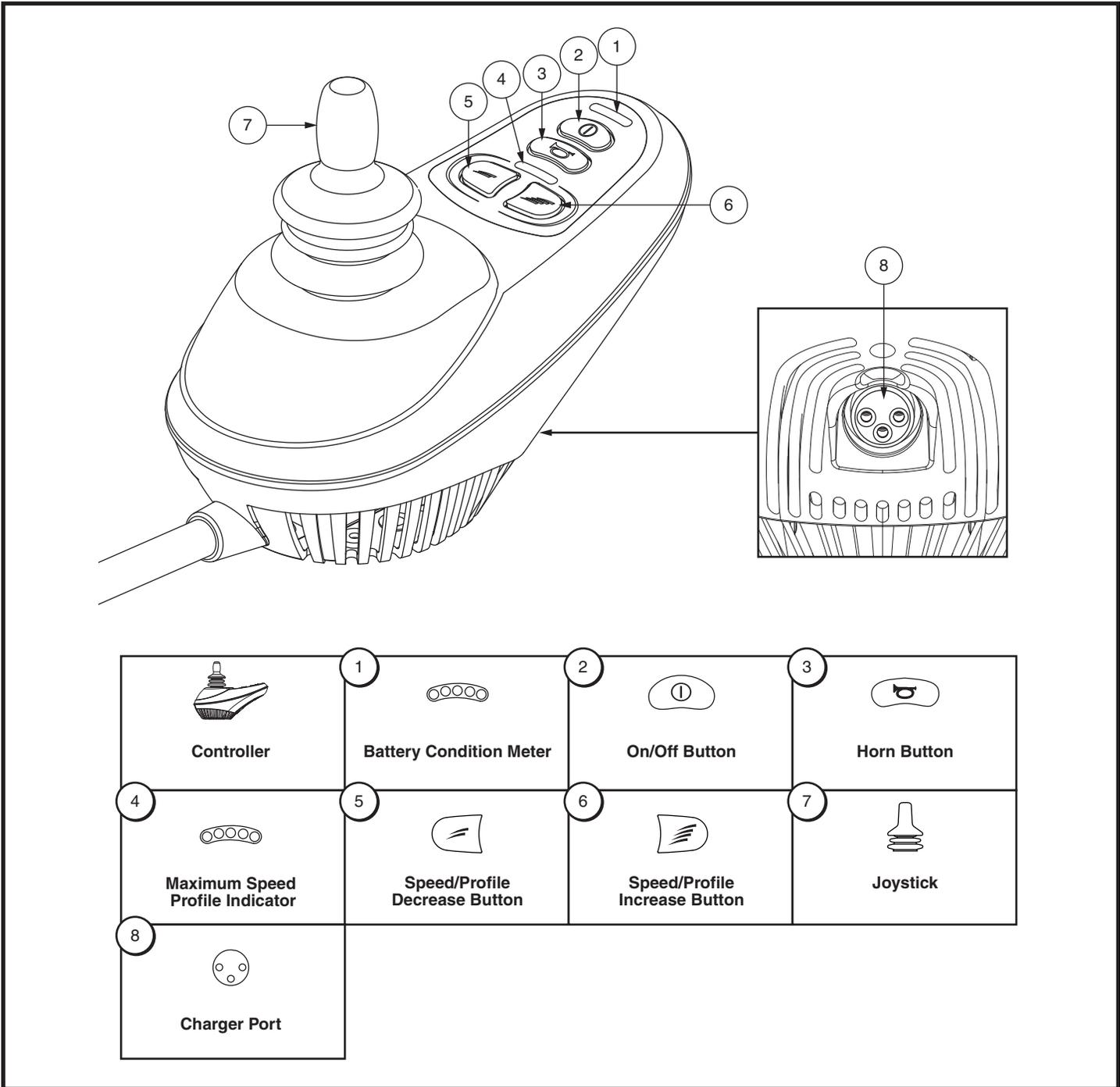


Figure 1. newVSI Components and Connections

## Operating the newVSI Controller

The newVSI Controller is used to operate your power chair and all of its components. See figures 1 and 2.

### The newVSI controller consists of:

1. joystick
2. keypad
3. 3-pin off-board charger/programming socket
4. 2-pin battery connector
5. 4-pin motor/brake connectors (left and right)

### Joystick Control

The joystick controls the direction and speed of your power chair. When you move the joystick from the neutral (center) position, the electromagnetic brakes release and allow your power chair to move. The farther you push the joystick from its neutral position, the faster your power chair moves. When you release the joystick and allow it to return to the neutral position, the electromagnetic brakes engage and the power chair comes to a complete stop.

### Keypad

The keypad is located directly in front of the joystick. It contains keys that you will use to control your power chair. See figure 1.

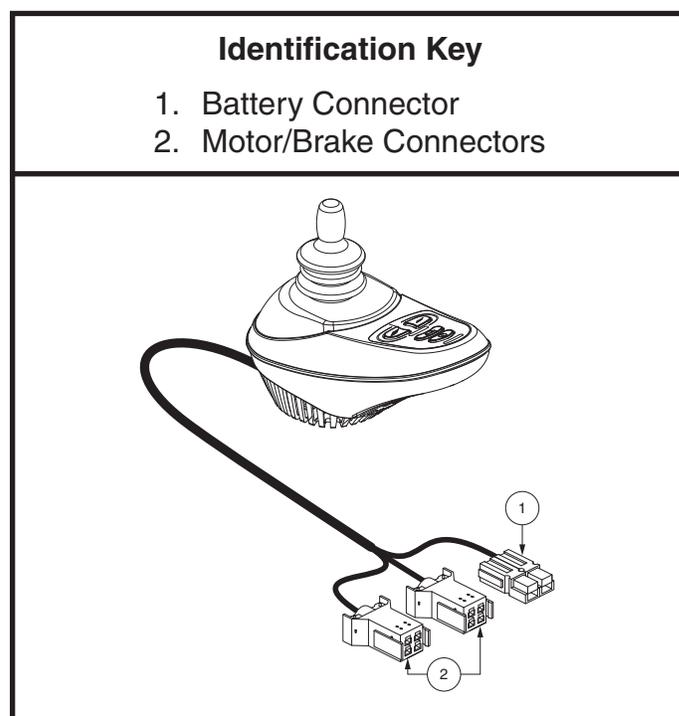
### On/Off Key

The on/off key turns the system on and off.



**WARNING!** When faced with an emergency stop 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.

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



**Figure 2. newVSI Controller (Battery and Motor/Brake Connectors)**

## Battery Condition Meter

The battery condition meter is located in front of the joystick. **See figures 1 and 3.** This is a 5-segment illuminated display that indicates that the newVSI is powered on and also gives the battery status, the newVSI status, and the electrical system status.

- **Red, yellow, and green lights illuminated:** Batteries charged; newVSI and electrical system OK.
- **Red and yellow lights illuminated:** Charge batteries if possible; newVSI and electrical system OK.
- **Red lights only illuminated or slow flash:** Charge batteries as soon as possible; newVSI and electrical system OK.
- **Rapid flash of lights:** The newVSI has detected a problem in the electrical system and power chair drive operation is inhibited. Refer to “Fault Codes.”
- **Side-to-side ripple of lights twice followed by seven flashing lights:** The joystick was not in the neutral position when the controller was turned on. Refer to “Fault Codes.”
- **Lights step up from left to right:** The newVSI has detected an off-board charger plugged into the off-board charger port.

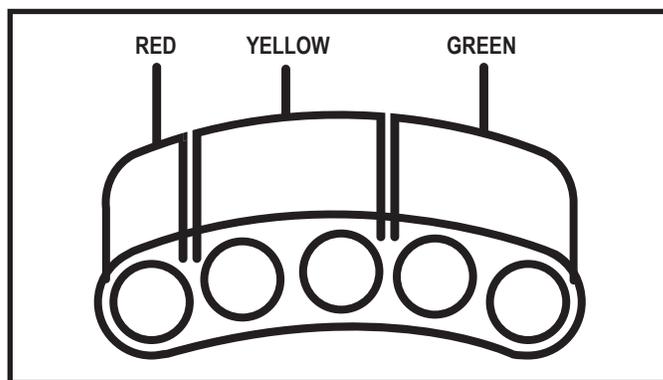


Figure 3. Controller Light Segments

**NOTE: If you have tried to resolve the problem and still get “side-to-side ripple of lights,” contact your authorized Pride Provider.**

**NOTE: When the batteries approach a discharged state, the LED lights will begin to flash slowly, reminding you the batteries need to be charged immediately!**

## Speed/Profile Keys

There are two keys that control either speed or profiles, depending on your newVSI program. Press the speed/profile increase key to increase the speed or change the profile. Press the speed/profile decrease key to decrease the speed or change the profile. The speed/profile setting is displayed on the maximum speed/profile indicator. If your power chair was programmed with a drive profile, contact your authorized Pride Provider for more information.

**NOTE: We recommend that the first few times you operate your power chair, you set the speed to the slowest setting until you become familiar with your new power chair.**

## Horn Key

The horn key activates a warning horn.

### 3-Pin Off-board Charger/Programming Socket

You may use an off-board charger to charge your power chair batteries through the 3-pin socket located on the front of the newVSI. **See figure 4.** If you use an off-board charger, the charger current should not exceed 12 amps. Contact your authorized Pride Provider for more information.

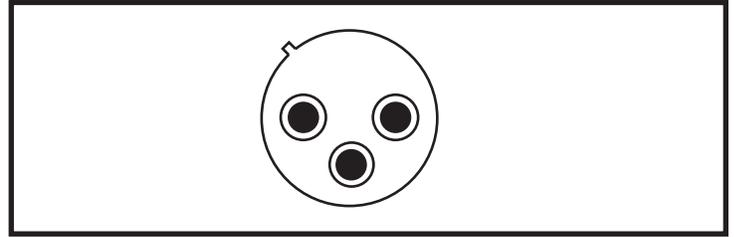


Figure 4. 3-pin Off-Board Charger Socket



**WARNING!** Only chargers with Neutrik NC3MX plugs should be connected to the off-board charger/programming socket. See your authorized Pride Provider for more information.

**WARNING!** Maximum amperage may vary by power chair. You must only recharge the power chair batteries with the supplied off-board battery charger.

**NOTE:** The socket may also be used for reprogramming the newVSI. Contact your authorized Pride Provider for more information.



**WARNING!** Failure to properly align the connectors can result in damage to the newVSI, the charger harness, and the connectors.

### 2-Pin Battery Connector

The 2-pin battery connector connects the controller to the battery or batteries.

### 4-Pin Motor/Brake Connectors

The 4-pin motor/brake connectors connect each motor and brake to the controller. There are two motor/brake connectors, one each for the left and right motors and brakes.

## **Locking/Unlocking the newVSI**

The newVSI has a feature that enables you to lock your power chair to prevent unauthorized use.

### **To lock the newVSI:**

1. With the newVSI powered on, press and hold the on/off key. After one (1) second, the newVSI should beep.
2. Release the on/off key.
3. Push the joystick to the full forward position until the newVSI beeps.
4. Pull the joystick to the full rearward position until the newVSI beeps.
5. Release the joystick. There should be a long beep.
6. The newVSI is now locked.

### **To unlock the newVSI:**

1. Press the on/off key and power on the newVSI. The maximum speed/profile indicator should ripple side to side.
2. Push the joystick to the full forward position until the newVSI beeps.
3. Pull the joystick to the full rearward position until the newVSI beeps.
4. Release the joystick. There should be a long beep.
5. The newVSI is now unlocked.

***NOTE: If the above procedure fails to either lock or unlock the newVSI, contact your authorized Pride Provider.***

## **Sleep Mode**

Your newVSI controller has a sleep mode feature. Sleep mode is a built-in circuit that automatically shuts off the main power if the joystick is not moved in any direction for a period of time predetermined by controller program. The battery condition meter lights on the keypad indicate sleep mode by blinking once every 2.5 seconds. To restore power and continue, push the on/off key twice.

## **Thermal Rollback**

The newVSI controller is equipped with a thermal rollback circuit. This circuit monitors the temperature of the controller, which roughly translates to motor temperature. In the event that the newVSI controller becomes excessively hot, motor current (amperage) is reduced. For every degree above normal temperature, the motor current limit is reduced proportionally. This reduces "power," which could also reduce power chair speed. Once the newVSI controller reaches its temperature limit, the current output is reduced to zero and your power chair will stop. This allows the electrical components and motors to cool down. When the temperature returns to a safe level, your power chair resumes its normal operation.

## Fault Codes

The newVSI controller is designed with the user's safety as the prime consideration. It incorporates many sophisticated self-test features which search for potential problems at a rate of 100 times per second. If the newVSI detects a problem either in its own circuits or in the power chair's electrical system, it may decide to stop the power chair, depending on the severity of the problem. The newVSI is designed to maximize the user's safety under all normal conditions. The table below identifies the individual fault codes. Fault codes are displayed as a rapid flashing of the lights. If you encounter one of these fault codes or experience any other problems with your power chair, contact your authorized Pride Provider.

Flashing Lights	Diagnosis and Solution
1	The batteries need charging or there is a bad connection to the batteries. Check the connections to the batteries. If the connections are good, try charging the batteries.
2	The left motor has a bad connection. Check the left motor connection.
3	The left motor has a short circuit to another connection. Contact your authorized Pride Provider.
4	The right motor has a bad connection. Check right motor connection.
5	The right motor has a short circuit to another connection. Contact your authorized Pride Provider.
Side-to-side ripple of Maximum Speed/Profile Indicator lights	The controller is locked. Refer to "Locking/Unlocking the newVSI."
7	A joystick fault is indicated. Make sure that the joystick is in the (center) position before turning on the controller.
8	A controller system fault is indicated. Make sure that all connections are secure and the batteries are fully charged.
9	The parking brakes have a bad connection. Check the parking brake motor connections. Make sure the controller connections are secure.
10	An excessive voltage has been applied to the controller. This is usually caused by a poor battery connection. Check the battery connections.

## Care and Maintenance

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

## Warranty

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





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