

## 650DC DUAL MOTOR CONTROLLER.

**NOTE THE TRANSMITTER HAS BEEN PROGRAMMED**, it may be necessary to reprogram by following the specific directions in this manual. **DO NOT REMOVE THE TRANSMITTER BATTERY.**

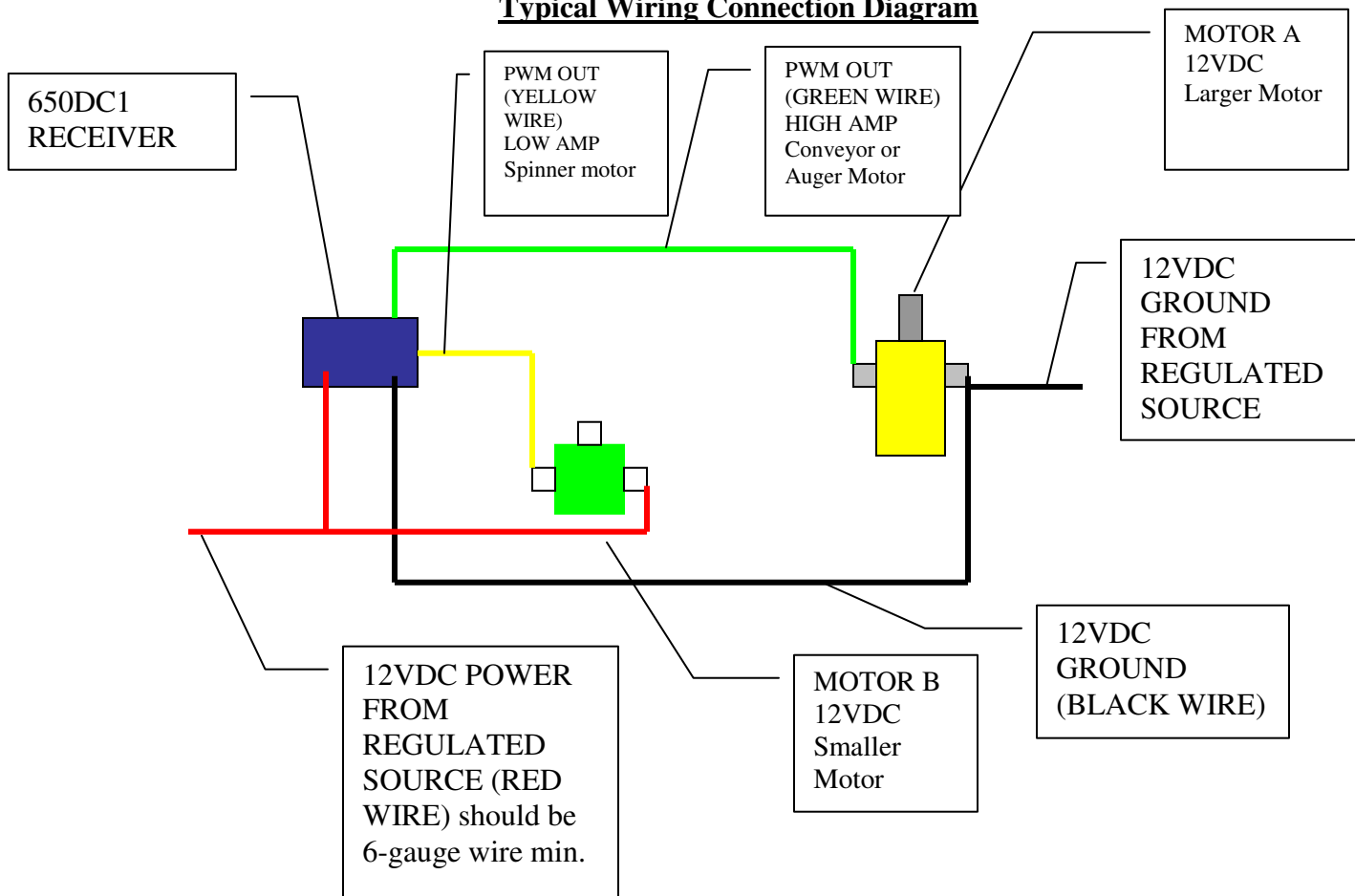
### For use with 12 volt dc voltage only

#### How it Works:

The 650DC Wireless Dual DC Motor Controller that provides RPM control for 2 single, 2 pole, DC motors that can output up to 200 amps to Motor A (Larger motor or conveyor or auger motor) and up to 100 amps to Motor B (smaller motor or spinner motor) for up to 1 second and a maximum continuous amperage of 75 to Motor A (larger) and up to 40amps to Motor B (smaller). The RPM control is done by providing the user 2 separate outputs, approximately 1/3 of the maximum motor RPM for each motor. The 650DC incorporates a E-Stop to protect the motor and electronics, the 650DC has built-in safety circuits.

- Automatic shut down if motor is locked up. How this is done is if the receiver senses a current draw of more than the rated amps for more than approximately 1000mS the unit will shut down from 1 to 30 seconds and must be restarted using on off button.
- Automatic shut off if the current draws do not drop below the rated amps after 5 to 7 seconds. Once again, the receiver will shut down for 1 to 30 seconds.

#### Typical Wiring Connection Diagram



## **WIRING DIRECTIONS**

**Note you must wire per directions it might look like you are applying power to both sides of Motor B but you are not. Use a disconnect on the main power wire when unit is not in use to avoid wire corrosion.**

**Motor A** is in reference to your larger motor typically the auger or conveyor motor which is typically a ½ HP motor.

**Motor B** is in reference to your smaller motor typically the spinner motor up to 1/3 hp

Use weather proof secure connectors with dielectric grease for all connections. NO WIRE NUTS. The use of Alumiconn connectors or soldering is best.

Your ground wire needs to come from the battery and can typically be a 4 or 6-gauge wire minimum.

**Connect the black wire** from the wireless receiver to battery ground via your power cable and to one side of motor A (larger motor) (some motors may have two of the same color wires or unlabeled terminals, If so if you hook up the wires wrong the motor will run in the opposite direction, simply switch the wires to switch the direction of the motor)

**Connect the Green Wire** from the wireless receiver to the Red wire of Motor A (If no red wire then connects to the open post or wire If motor runs in reverse switch the wires at the motor)

**Connect the Yellow wire** from the wireless receiver to one of the posts or wires on Motor B

The last connection you should make is from your 12vdc battery to the red wire of the wireless receiver and also to the other open post or wire on Motor B.

**Use at least a 6 Gauge wire** from your 12vdc battery to the wireless receiver. A good rule is to use one or two sizes larger gauge wire than what the larger motor takes for your main power feed.

Do not use the transmitter if frozen, warm it up before use or it may not operate properly.

Check online for any updated directions at [www.snowplowplus.com](http://www.snowplowplus.com) or [www.controlallwireless.com](http://www.controlallwireless.com)

**\*\*\*User must maintain good, clean properly connected connections for proper operation and to avoid damage to the receiver and void the warranty. It is recommended that you use a battery disconnect when the unit is not in use as continuous powered wiring will enhance corrosion of wiring.**

**OPERATION:**



**650DC STANDARD TRANSMITTER**

Shown above is a typical transmitter for wireless operation of a 12VDC motor. The button functions are as follows:

1. Slow speed setting of approximately 1/3rd of full speed of Motor "A" (Conveyor or Auger Motor).
2. Slow speed setting of approximately 1/3rd of full speed of Motor "B" (Spinner Motor).
3. Medium speed setting of approximately 2/3<sup>rd</sup>'s of full speed of Motor "A".
4. Medium speed setting of approximately 2/3<sup>rd</sup>'s of full speed of Motor "B".
5. Full speed setting of approximately 3/3<sup>rd</sup>'s of full speed of Motor "A".
6. Full speed setting of approximately 3/3<sup>rd</sup>'s of full speed of Motor "B".
7. **Blast/** A timed 6 to 8 second moderate speed to large motor
8. **OFF/** Shuts down the receiver unit. Must be turned on again using on/off
9. **\*\*\*\*** It is recommended that when the DC motor/s is under high loads that the control first be started at medium to high speed for the first 1 to 5 seconds of operation to avoid damage to the motor or control and may void the warranty**\*\*\*\***

## **Programming Transmitter to Receiver: [Video link](#)**

The following are the step by step procedures for setting the unique address between the transmitter and receiver or adding extra transmitters to the receiver (up to 40 transmitters). Note you need to be next to the receiver and the receiver needs to have verified 12-volt power and ground connected and the cover off of it.

On the backside of the standard Transmitter, use a paperclip and **GENTLY** insert it in the hole next to the clear blue window. Once the programming button is depressed, a blue LED will begin to blink for 15 seconds. Flip the Transmitter over and firmly depress all 8 buttons starting with the ON button within 15 seconds. Now the Transmitter has acquired a 1 in 16 million address. **MAKE SURE THE BLUE LIGHT GOES OUT BEFORE PROCEEDING.**

Next step is to remove the receiver box cover noting the drain hole positions in the cover. With the receiver connected to a 12VDC power source look inside the box next to the red LED depress the black programming button. The red LED will begin to flash for 15 seconds. Take the Transmitter while the red LED is flashing and depress all buttons one at a time on the transmitter. When you are finished press the black button on the receiver again and the red light will stop blinking and you are now programmed. To test this, press a button on your transmitter and the red light on the receiver will come on. Re-install the cover noting drain hole position, depress the "OFF" button on the transmitter to make sure the unit is off. The 600DC is now ready to operate the DC motor. Note the transmitter battery can last for years. Before removing the battery, you can check it by using the paperclip method above and if the blue light starts flashing your battery is fine. You will then need to complete the programming process.

## **Specifications:**

- Up to 150 amps of output to Motor "A" and up to 40 amps to Motor "B" for up to 1 second.
- Continuous output of up to 75 amps on Motor "A" and 40 amps on Motor "B".
- 3 separate motor speed outputs of approximately 1/3, 2/3, 3/3, of both motors current draw.
- 12VDC with spike protection up to 40VDC

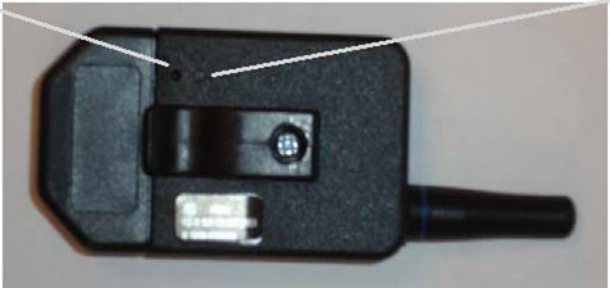
Built-in over current safety protection. If a lock-up condition occurs at the motors or motor causing them to draw more than 175 amps, the unit will automatically shut down and must be turned back on using the on off button after the circuit temperature drops to an acceptable range taking 1 to 30 seconds. **Warning: If this situation continues to re-occur the operator needs to check for reasons why the motors will not turn. Continually trying to start a jammed motor will cause damage to the receiver and motor.**

Note: 1 yr limited warranty, does not cover burnt circuit boards. Units are potted for durability and circuit protection and are not repairable. The only way they can burn out is by taking a voltage spike from what they are hooked up to or incorrect connections. Transmitters are a wearable part.

More info: see [www.controlallwireless.com](http://www.controlallwireless.com) or email [sales@controlallwireless.com](mailto:sales@controlallwireless.com)

Add button

Blue light



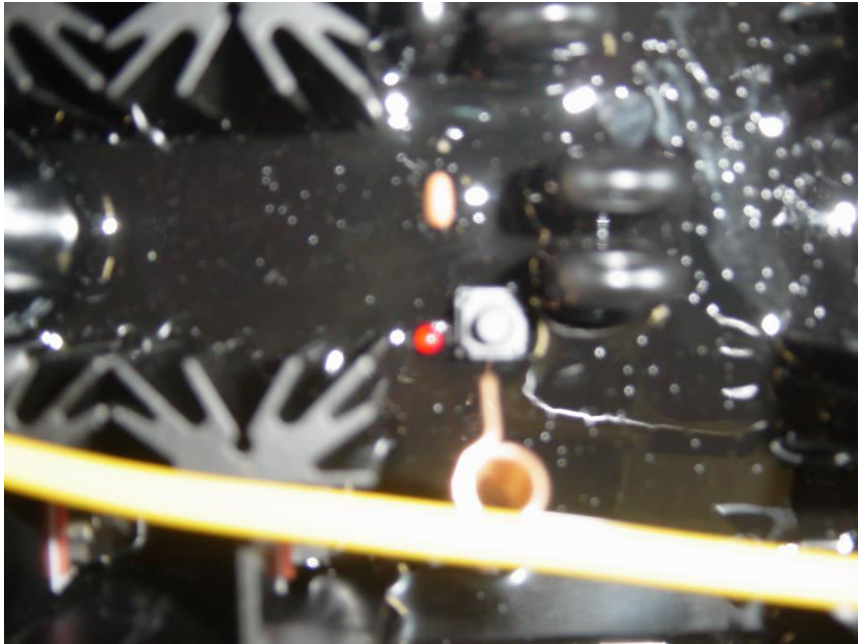
COVER



2032 battery



TRANSMITTER



Picture of receiver button with red LED Light