Maxflow Single Motor Controller
Model 3060VPL

User Manual

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Introduction

Before you Begin

It is important that you read and understand this manual before you attempt to install, operate, or troubleshoot the system in any way.

This manual describes the installation, operation and basic troubleshooting of your 3060VPL Single motor controller.

Safety Notes

Please observe all Safety Notes at every stage of system installation and system operation. A reminder to be careful is not intended to suggest that you shouldn't be careful at other parts of the process.

Employ all standard safety procedures when installing the system, using the system, and operating the motor vehicle in which the system is installed.

Make sure that the vehicle is not running, that the system is turned OFF, and that auxiliary battery power is NOT engaged at any time during the installation process.

Do not mount the 3060VPL where it would interfere with safe vehicle operation, airbag deployment, or the operation of any other vehicle safety device.

The cab controller, hopper and motor must be securely and appropriately mounted before they are connected to the system wire harness.

DO NOT GROUND THE SYSTEM TO THE TRUCK FRAME OR CHASSIS.

Be sure to keep clear of all moving parts and action surfaces once installation is complete.

Before operating, verify that all guards are in place.

Maintain a minimum of 25 feet of clearance from operating spreader.

Never allow frozen clumps to get into the spreader.

Use flashing lights when operating the spreader.

Empty and clean the spreader after every use.

Before servicing, make sure the spinner is stopped, and that the power is turned off and unplugged.

Replace broken or damaged connectors and/or wire immediately.

What Does it Do?

The 3060VPL motor controller allows the driver in a truck cab to control 1 rear-mounted electric motor, powered by the truck's electrical system.

The motor is controlled both in terms of ignition and speed control. In addition to letting you adjust the running speed of the motor, the 3060VPL watches for potential jams, using our proprietary "Thor's Hammer™" feature to break them when they occur.

There is also a "BLAST" mode, which gives a high-power burst to the motor for a brief time, to cover a larger area with the spreader or to break the motor free from accumulated debris and corrosion.

Combined with these and other features designed to disable the motor when an error occurs, the 3060VPL System will help your salt spreader to run more efficiently.

Features

- Illuminated **BLAST button**
- **Pause** control
- **Flashing LED** light output
- **Variable speed control**
- **Jam alert** detects and warns user of a stalled or jammed motor
- **Vehicle battery voltage alarms** (both low and high voltage)
- **Thor's Hammer™** (automatic anti-jam technology)
- Delivers up to **30 amps** of running power with **60 amps** for "BLAST"
- Motor current fold-back – helps to provide **motor burnout protection**

System Components

Included:

- Single Motor Controller 3060VPL: 30A, 1/3 HP with 60amp Blast
- Pig-tail with quick-disconnects, **called "QDs"** (10ga wire) :
  - Battery input — Anderson 6331G1, Red with pins
  - Spinner motor — Anderson 6331G6, Blue with pins
- Accessory Connections
  - Vibrator (solenoid)
  - Ignition sense
  - Battery minus
  - LED Strobe lighting

Required: Installation Materials

- In-line FUSE or Circuit breaker 75 A, battery to controller connector
- Mating Connector — Anderson 6331G1, Red with pins
- Mating Connector — Anderson 6331G6, Blue with pins
- Additional wire required to connect pig-tails:

Battery plus to 75A fuse / circuit breaker	(10 AWG wire, red)	2'
75A fuse / circuit breaker to controller	(10 AWG wire, red)	6'
Battery minus to controller	(10 AWG wire, black)	6'
Controller to spinner motor plus	(10 AWG wire, red)	22'
Controller to spinner motor minus	(10 AWG wire, black)	22'
Controller to ignition plus	(22 AWG wire, red)	3'
Controller to battery minus	(22 AWG wire, black)	3'
Ring terminals		4
Controller to control solenoid vibrator	(14 AWG wire, yellow)	22'
Controller to LED lighting	(16 AWG wire, orange)	22'

Note: Extra quick-disconnect ("QD") connectors are provided for integration to spreaders wire harness.

Example of Extra Mating Connector and pins APP - Anderson Power Products: RED 50 AMP Connector	

How to Use the System

Using Pig-tail Cables

In order to be as compatible with as many vehicles as possible, the 3060VPL comes with what are known as “pig-tail” cables. These are short cables, roughly 6-8 inches long, which are connected to the 3060VPL on one end and to a “QD” module on the end. We also give you an extra “QD” module for each cable.

To connect to these pig-tails, you will need to:

1. Cut lengths of 10, 22, 14 and 16 gauge wire (see System Components for details on color and length of each wire).
2. Strip the insulation from the last ¼ inch of either end of each wire.
3. Solder one end of the following lengths of wire into the spare quick-disconnect connector leads:

- Controller to spinner motor, red
- Controller to spinner motor, black
- Battery to controller, black
- Fuse to controller, red

4. Solder the other ends of the wires from the previous step to the ring terminals.

5. Push the connector leads into the “QD” housing until they snap into place.

Note:

- Use the RED “QD” to make the mating cable for the power pig-tail
- Use the BLUE “QD” to make the mating cable for the motor drive pig-tail
- Make sure that you push the black lead into the side of the spare “QD” that mates with the black wire going into the pig-tail’s “QD.”

System Installation

1. Select the location you will use for mounting the 3060VPL System in your vehicle. It must be a location which will not cause the system to interfere with the safe operation of the vehicle, or any of the vehicle's safety systems.
2. **Employing standard safety practices**, drill holes in the location you have chosen according to the mounting bracket diagram shown in Figure 2. Figure 2 is NOT to scale, but a to-scale representation of the bracket is included. You should be able to lay this drawing over the area where you will place the mounting bracket, and use it as a guide.
3. Choose the location you will be using to pass the power cable through the vehicle firewall to the battery (normally located in the engine compartment) and the motor drive cable to the spreader motor (normally located at the vehicle tail-gate). Make sure that these locations will not be covered by the mounting bracket.
4. If you will be connecting the 3060VPL System to either your LED lighting system or to a vibrator, you will need to select locations for these wires as well.
5. **Employing standard safety practices**, drill holes in the location you intend to pass these wires through.
6. Using the included hardware, mount the mounting bracket to the holes you drilled.
7. Pass all connections through the locations you selected. **Make sure that all wires are kept away from anything which could damage them (such as**

sharp edges and/or hot surfaces and/or surfaces which could become hot).

8. Using the included hardware, mount the 3060VPL System to the mounting bracket.
9. Build the main power cable.
    a. You will need the 2’ red 10AWG wire, the 6’ red 10AWG wire, the 75A fuse, the 6’ black 10AWG wire, 2 ring terminals, and the spare red connector.
    b. Solder a ring terminal to one end of the black wire.
    c. Solder a ring terminal to one end of the short red wire.
    d. Solder the other end of the short red wire to the fuse.
    e. Solder one end of the long red wire to the other side of the fuse.
    f. Solder the other end of the long red wire into the terminal marked “+” on the red connector casing.
    g. Solder the other end of the black wire into the terminal marked “-“ on the red connector casing.
10. Build the motor drive cable.
    a. You will need the 22’ red 10AWG wire, the 22’ black AWG wire, 2 ring terminals, and the spare blue connector.
    b. Solder a ring terminal to one end of the black wire.
    c. Solder a ring terminal to one end of the red wire.
    d. Solder the other end of the red wire into the terminal marked “+” on the blue connector casing.
    e. Solder the other end of the black wire into the terminal marked “-” on the blue connector casing.
11. Use the ring terminals on the power cable to connect it to the battery. The red wire should be connected to the positive terminal, and the black wire should be connected to the negative terminal.
12. Use the ring terminals on the motor drive cable to connect it to the motor. The red wire should be connected to the positive terminal and the black wire should be connected to the negative terminal.

13. Connect the red connector of the power pig-tail to the red connector of the power cable you built. Make sure that the red wire and the black wire matches up on both sides.
14. Connect the blue connector of the motor pig-tail to the red connector of the motor cable you built. Make sure that the red wire and the black wire matches up on both sides.

You will also need to make the following connections:

1. Ignition sense +: Red 22 AWG wire to ignition
2. Ignition sense -: Black 22 AWG wire to battery minus terminal

The following connections are optional:

1. Vibrator: Yellow 14AWG wire
2. LED lights: Orange 16 AWG wire

System Startup

Please refer to Figure 1 for notes on the locations of the control switches.

This procedure is to be completed before the system is put into active use at the start of a duty cycle. Prior to following this procedure, ensure that:

- The vehicle is not running
- The cab controller's Power switch is in the "OFF" position
- The cab controller's Mode switch is in the "PAUSE" position
- All personnel are clear of the spreader motor

1. Turn vehicle on.
2. Move the Power switch to the "ON" position. A power light will illuminate.
3. Turn the Speed Dial to the desired speed setting.
4. Move the Mode switch to the "RUN" position.

Caution is strongly advised for the next step.

5. Press and hold the "BLAST" button for a couple of seconds, until the spinner motor is moving smoothly.
6. Release the "BLAST" button.

The spinner motor will now run at the speed indicated by the Speed Dial.

System Operation

This procedure is to be followed after System Startup.

To adjust the speed of the spinner motor:

- Ensure the Mode switch is in the RUN position
- Turn the Speed Dial to the desired speed setting

To turn the spinner motor off temporarily:

- Move the Mode switch to the PAUSE position

To activate the “BLAST” mode:

- Press and hold the “BLAST” button
- Release the “BLAST” button to end “BLAST” mode

Troubleshooting

System Startup

On startup, Status LED lights, system not responding

This most likely indicates that the vehicle charging system is not functioning appropriately. This could mean any of the following:

1. Battery voltage too low
2. Battery voltage too high
3. Alternator malfunction

There may also be a battery indicator light lit on the dashboard.

On startup, Status LED flashes, system not responding

You may have started the system with the MODE switch in the “ON” position. Turn the system off, move the switch to the “PAUSE” position, and then power the system back up.

System Operation

During operation, the Status LED begins to flash, motor stops running

The motor may have jammed.

Turn move the MODE switch to the “PAUSE” position, turn the system off, and then turn the vehicle off. Inspect the motor to see if you can determine the cause of the jam. Once the cause of the jam has been found and resolved, proceed with the System Startup procedure.

If the motor was not jammed, it may have overheated. If this is the case, it will need time to cool down before the system is restarted.

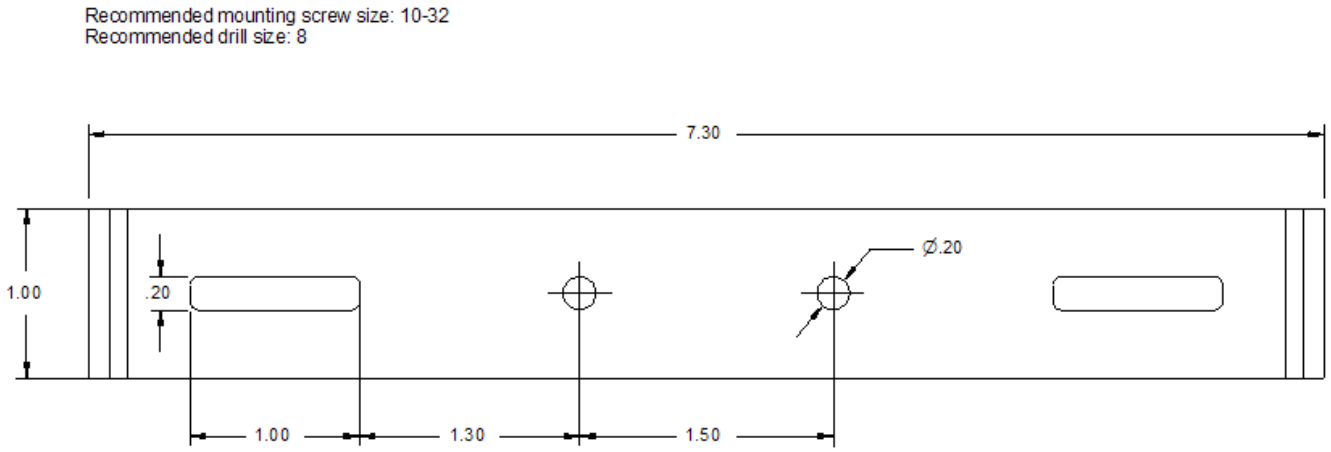
During operation, system power LED begins to flash

This means that the battery supply voltage is low.

Illustrations

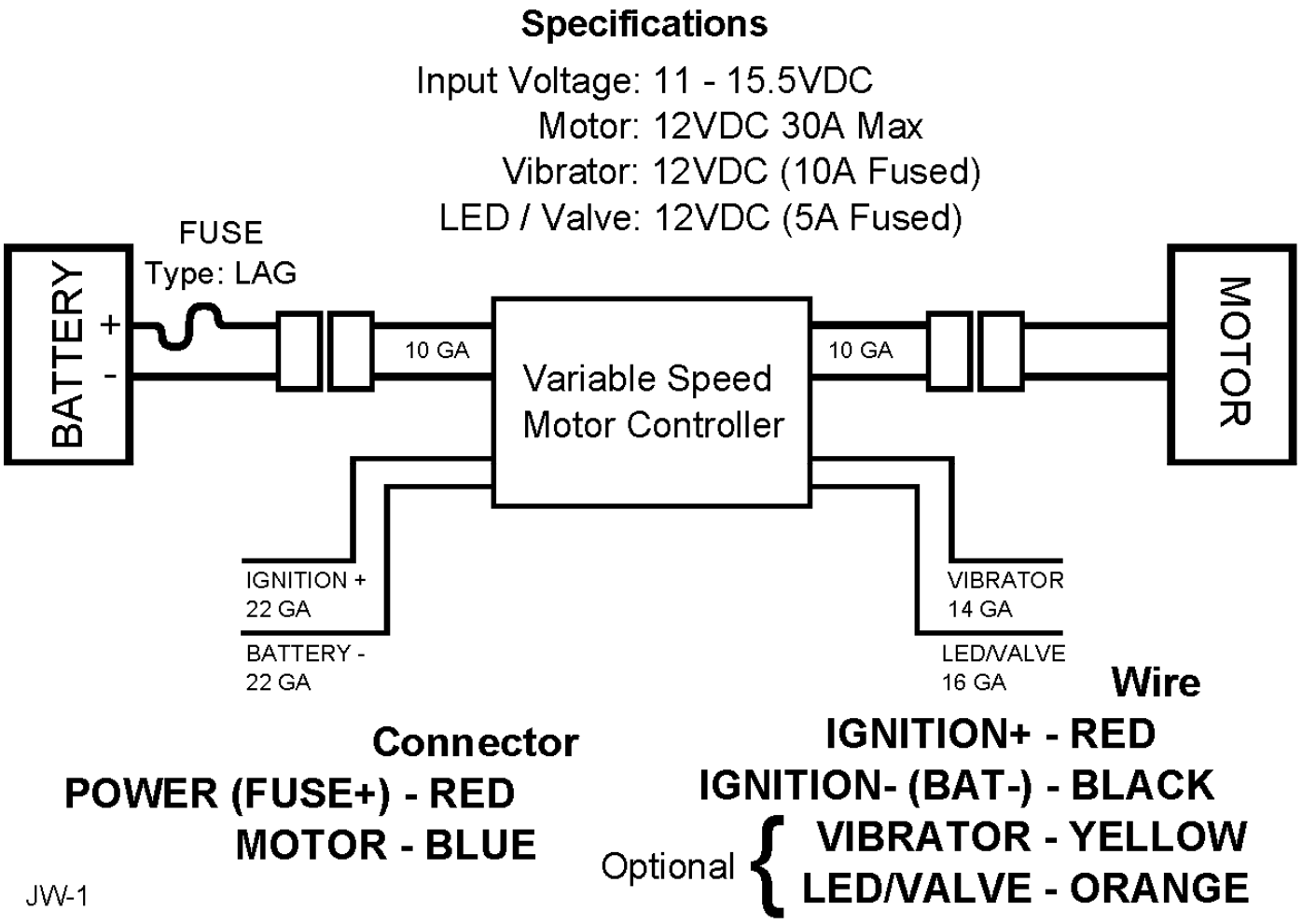
Figure 1: Front view of the 3060VPL

Figure 2: Bracket Mounting Pattern



NOT TO SCALE

Figure 3: Basic Wiring Diagram



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Warranty and Return Policy

This unit is meant to be installed in a truck cab (such as a pick-up or snow plow cab). It is not designed for open-frame cabs or any other style of cab where the unit would be exposed to the weather while the vehicle is being operated. This unit is durable, but like most electronics is susceptible to corrosion and water spray.

We will happily repair or replace a defective unit for a period of 30 days after the date of original purchase. We require that you contact us for a return material authorization (RMA) number.

We will determine if the item failed due to a manufacturer's defect or through operator error, abuse, or neglect, and our decision is final in this matter.

If we determine that the item failed due to operator error, abuse or neglect, we will determine the expense to repair the unit, and contact you to discuss how you would like to proceed.

We will refund the purchase price of any uninstalled, unused item in its original unopened package for a period of 7 days after the date of original purchase.

There will be a restocking fee of 25% of the purchase price on all items returned for a refund.

Shipping charges will not be refunded on any returned items. Buyer is responsible for any shipping charges associated with returning an item.