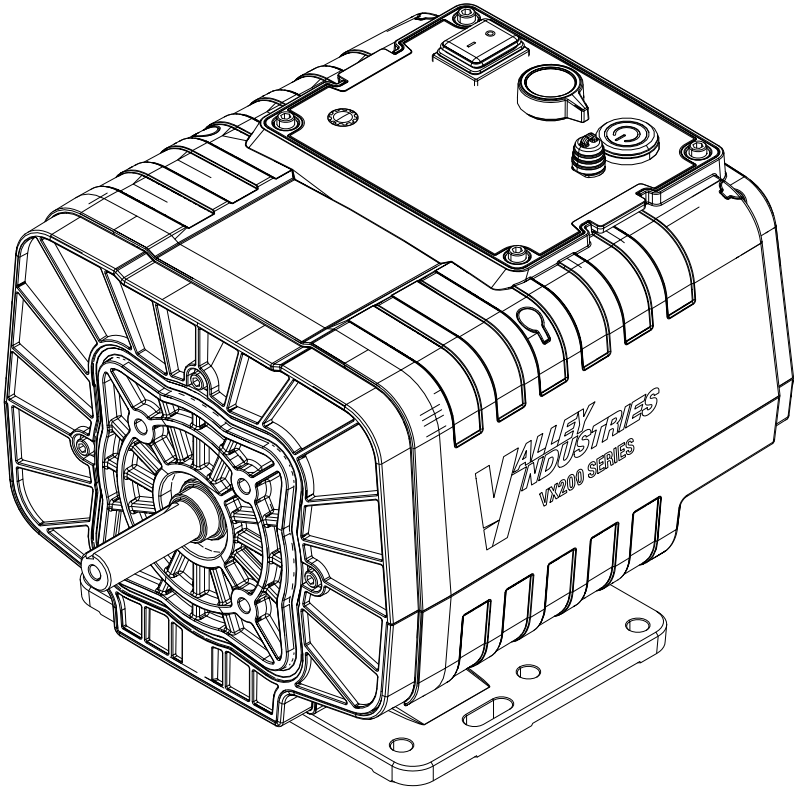
# VIPOWER™

# Owner's Manual

**VX-120 & VX-200**
**Electric Motors**




**5.22.2025** **VX120/200-M-REV2**

# Table of Contents



# Support


Phone: 1-800-864-1649
Email: sales@valleyind.com
Website: www.valleyind.com

# Introduction

Thank you for purchasing a VIPower™ electric motor. We want to help you to get the best results from your new electric motor and to operate it safely. This manual contains information on how to do that; please read it carefully before operating.

# Safety Messages

Your safety and the safety of others are very important. We have provided important safety messages in this manual and on the electric motor. Please read these messages carefully.

**⚠ DANGER ⚠**

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**⚠ WARNING ⚠**

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION ⚠**

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

# Important Safety Information

For your safety and the safety of others, always follow the instructions below.

- Before you start operations, review and understand these instructions that have been provided.
- Understand the operation of all controls and learn how to stop the electric motor quickly in case of emergency.
- Make sure the operator receives adequate instruction before operating the equipment that the motor is connected to.
- Do not allow children to operate the electric motor. Keep children and pets away from the area of operation.
- Do not leave the electric motor unattended while it is on.
- Always perform a pre-operation inspection before each operation and correct any problems.
- Use only VIPower™ 56V DC battery packs, battery charger and power cables to power on your electric motor.
- Do not place objects on the top of electric motor even if it is turned off.
- When electric motor isn't in use, remove safety key and store in a safe place.
- Always wear safety glasses, hearing protection and other appropriate PPE during use.

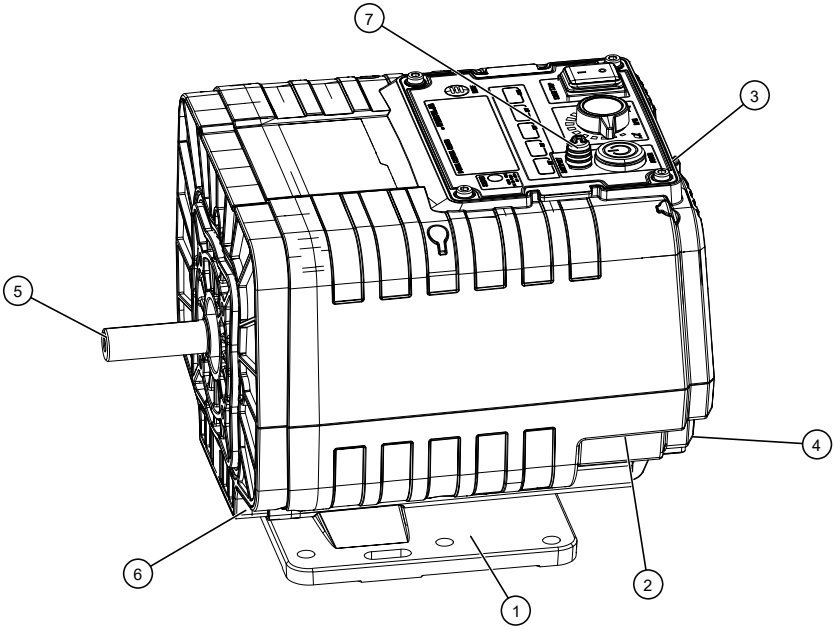
### Safety Label Location

The label below is affixed to your electric motor and warns of potential hazards that could cause serious injury. Please read it carefully.

# Motor Specifications

| General | | |
|---|---|---|
| Model # | VX-120 | VX-200 |
| Length, Width, Height | 13.1” x 9.86” x 9.3”<br>333mm × 250.5mm × 236mm | 13.1” x 9.86” x 9.3”<br>333mm × 250.5mm × 236mm |
| Weight (lbs) | 24.7 | 31.7 |
| Cooling System | Forced Air | Forced Air |
| Continuous Rated Power | 3.4HP (2.5kW) | 6.7HP (5kW) |
| Torque | 4.87 ft-lb (6.6Nm) | 9.81 ft-lb (13.3Nm) |
| Voltage (V DC) | 56.0 | 56.0 |
| Current (A) | 50A Continuous/ 60A Peak | 90A Continuous / 120A Peak |
| Set Speed | 600 to 3600 RPM | 600 to 3600 RPM |
| Operating Temperature Range | 4°F - 122°F<br>(-20°C - 50°C) | 4°F - 122°F<br>(-20°C - 50°C) |
| IP Code | IP65 | IP65 |
| Noise Level (dBA) | 79 | 79 |
| Certifications | CE | CE |
| Motor | | |
| Motor Type | Brushless DC (BLDC-TEFC) | Brushless DC (BLDC-TEFC) |
| Insulation Class | F | F |
| Motor Shaft | Diameter ¾” - Straight Keyed Shaft | Diameter ¾” - Straight Keyed Shaft |
| Key Stock Dimensions | 3/16” x 3/16” x 1 1/2” | 3/16” x 3/16” x 1 1/2” |
| Material Specifications | | |
| Plastic Outer Housing | PA6 | PA6 |
| Ball Bearings | Cold Rolled Steel | Cold Rolled Steel |
| Motor Magnet Wire | 100% Copper | 100% Copper |
| Mounting Base | Aluminum | Aluminum |

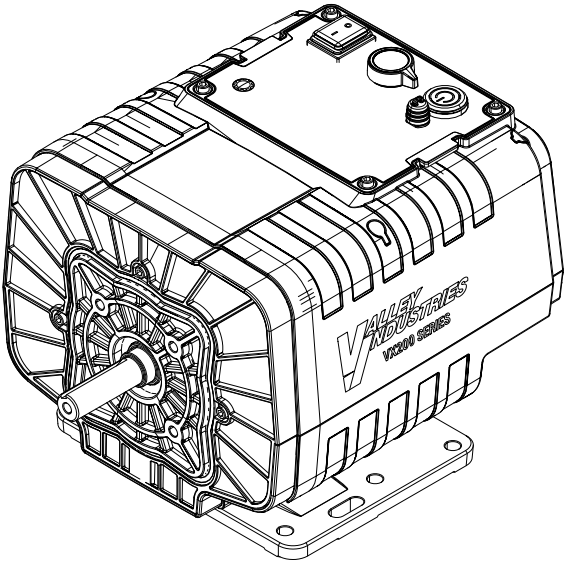
# Machine Component ID



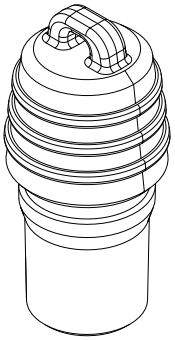

| # | Description | Function |
|---|---|---|
| 1 | Mounting Base | Secure power unit to suitable base using assortment of mounting holes. |
| 2 | Power Connection | 56V DC power cable inlet connection. |
| 3 | Accessory Communication Port | Input for accessory-related to motor control. |
| 4 | Fresh Air-Intake | Cooling air enters power unit in this area. Do not block this area. |
| 5 | Drive Shaft | Attach implements to the drive shaft. |
| 6 | Hot Air Discharge | Hot air is discharged from power unit in the area. Do not block this area. |
| 7 | Safety Key | When removed, shuts-down electric motor. |

# Unpacking

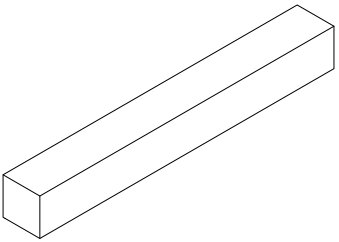
Here is what's included with your VIPower™ electric motor:




VX-120 or VX-200 Electric Motor



Safety Key



Drive Shaft Key

The safety key and drive shaft key are pre-installed on the electric motor. If the keys aren't on the electric motor, check to see if they are loose in the box.

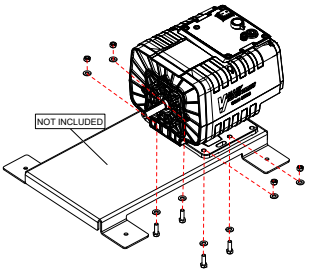
# Installation to Surface & Pump

Here are the proper installation steps for your VIPower™ electric motor to a surface and pump.

### 1. Installing to Surface

With four 5-16” bolts, mount electric motor to surface of equipment.

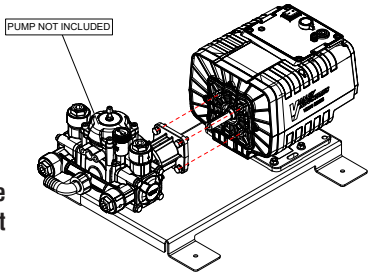
**5/16” bolts not included. Recommend 5/16” Grade 5 bolts. Consult your torque charts.**




### 2. Connecting Motor to Pump

Slide pump onto motor shaft ensuring key is inserted to the pump while still on motor shaft. Attach the pump flange to the motor face using 5/16”-24 bolts. Ensure the installation is completed in a criss-cross pattern.

**5/16”-24 bolts not included. It is recommended to use anti-seize when installing a new pump to the motor. It is also recommended to add Locktite Bluedot to bolts during installation to pump flange.**




# Connecting Battery Pack

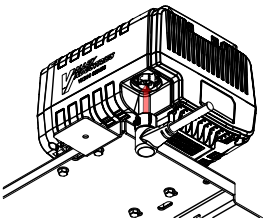
Here are the proper installation steps for your VIPower™ 56V DC battery pack with VIPower™ electric motor. VIPower™ power cables are required and sold separately.

### 1. Connecting Power Cable Connector to Motor

On backside of electric motor, install a connector plug end of power cable to the electric motor port.

**You will hear an audible click when properly installed.**

**Verify connection is secured by light tugging on connection.**



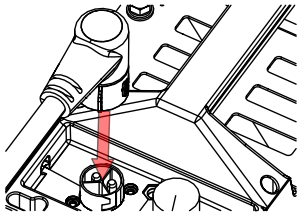
# Connecting Battery Pack
**(Continued)**

### 2. Connecting Power Cable Connector from Motor to Battery Pack

Connect the remaining connector plug end of power cable to a port on the battery pack.

**You will hear an audible click when properly installed.**

**Verify connection is secured by light tugging on power cable connector.**

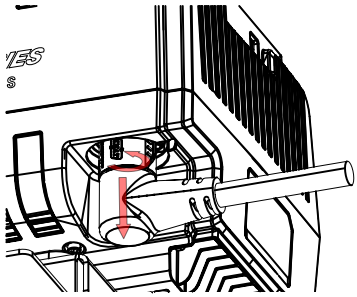


# Disconnecting Battery Pack

Here are the proper steps for disconnecting power cable connector between your VIPower™ electric motor and battery pack.

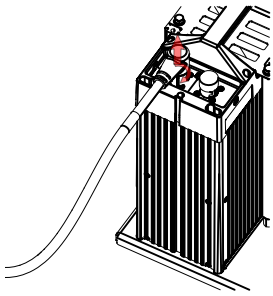
### 1. Disconnecting Power Cable Connector From Motor

Turn the winged connector plug clockwise by a quarter turn and then pull out from motor port.



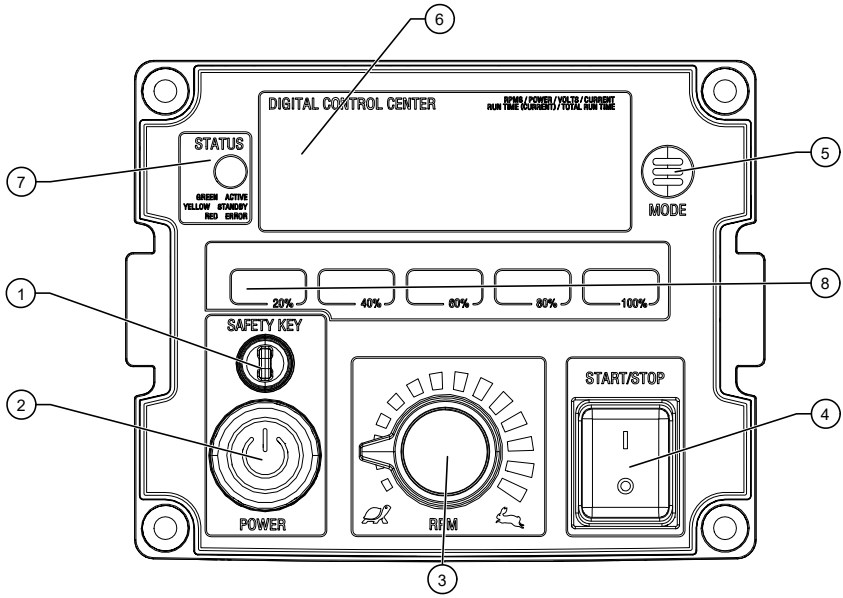
### 2. Disconnecting Power Cable Connector from Battery Pack

Turn the winged connector plug counter-clockwise by a quarter turn and then pull out from battery pack port.



# Control Panel Display

Here is an overview of the VIPower™ electric motor control panel display. Review and understand before operating.




### 1. Safety Key (Master On/Off)

- Can only be inserted for the operation of electric motor.
- When removed, electric motor will immediately stop running and battery pack shuts down.
- Remove safety key when not in use and store in a safe place.

### 2. Power Button

- Used for starting and shutting down the power supply to electric motor.
- Short pressing power button turns power on. Power button will light up green.
- Long pressing power button turns power off.Power button will turn off.
- NOTE: safety key must be inserted prior to using power button for start-up.

# Control Panel Display
(continued)

## 3. Speed Control Knob

- Control speed for the electric motor (600-3600 RPMs).
- When the speed control knob has been rotated to the  position, it will indicate that the speed is at a minimum 600 RPMs.
- When the speed control knob has been rotated to the  position, it will indicate that the speed is at a maximum RPMs.

## 4. Start/Stop Switch

- Used for starting and stopping the electric motor.
- Flip switch to START **( I )** to start the electric motor.
- Flip switch to STOP **( 0 )** to stop the electric motor.
- NOTE: The POWER button must be pushed down to power up the motor before flipping the switch to START **( I )**. E50 error will be displayed if in START position when motor is powered on.

## 5. Mode Button

- The mode button allows for use to access a wide range of motor status information.
- Information Shared: RPMs, Watts, Volts, Amps, Current Run Time, Total Run Time
- To go to next data point hit the MODE button.

## 6. Digital Control Center

- Used for displaying electric motor data.
- A “S” will be displayed to represent current speed along with four digits. Data is in RPMs. (Example: S3000 – 3000 RPMs)
- A “P” will be displayed to represent current power along with four digits. Data is in watts. (Example: P1000 – 1000 Watts)
- A “V” will be displayed to represent the current voltage along with four digits. Data is in volts. (Example: V0050 – 50 Volts)
- A “I” will be displayed to represent the current electricity along four digits. Data is in amps. (Example: I0020 – 20 Amps)
- A “t” will be displayed to represent the Current Run Time. Data is in hours. (Example: t001.00 – 1 Hour). Increments of 0.25 represent 15 minutes of runtime.
- A “T” will be displayed to represent Total Run Time along with four digits. Data is in hours (Example: T0266 – 266 Hours)
- A “E” will indicate an error code along with four digits that are tied to the error. (Example: E0008)

If an error code appears on the digital control center, please visit page 15 of this manual. Contact our support team for additional help at 1-800-864-1649. Our support hours are Monday to Friday, 8 AM to 5 PM CST.

# Control Panel Display
(continued)

**7. Status Indicator Light**

- Used to indicate the operating status of the electric motor.
- Red = Electric motor stops running when a fault occurs.
- Yellow = Battery pack is normal, but motor isn't running.
- Green = Battery pack and motor is running normal.

**8. Battery Indicator Light**

- Used to indicate the battery level of the electric motor. **Note: These may not be accurate if you add multiple batteries to the system.**

- 90%-100% = Five green indicator lights on.

- 80%-90% = Four green indicator lights on.

- 60%-80% = Three green indicator lights on.

- 40%-60% = Two green indicator lights on.

- 20%-40% = One green indicator light on.

- 10%-20% = One green indicator light flashing.

- 1% - 10% = One red indicator light flashing.

- 0% = One red indicator light on.

# Pre-Operation

Before operating your VIPower™ electric motor, it is very important to take a few moments before you operate the electric motor to check its condition. Be sure to take care of any problem you find before operating.

## ⚠ DANGER ⚠

Improperly maintaining this electric motor, or failure to correct a problem before operation, can cause a malfunction which you can be seriously hurt or killed.

Always perform pre-operation inspection before each operation and correct any problem.

## ⚠ WARNING ⚠

Before beginning your pre-operation checks, be sure the START/STOP switch is in the STOP **( O )** position.

Always check the following items before starting your electric motor:

1. Look for signs of damage on the electric motor and power cord.
2. Verify that the electric motor is properly installed and fastened securely to a base using bolts and mounting plate.
3. Check the equipment powered by this motor.

Review the instructions provided with the equipment powered by this motor for any precautions and procedures that should be followed before motor startup.

# Operation

### 1. Starting the Electric Motor

1. Make sure the SAFETY KEY is inserted in control panel.
2. Make sure the START/STOP switch is in the STOP **( O )** position.
3. Press the POWER button.
   a. POWER button will illuminate green when powered on.
4. Press the START/STOP switch to the START **( I )** position. Motor shaft will rotate.
5. Change the speed of the motor with the RPM control knob.

**NOTE: The VX electric motors are installed with Soft Start technology. It will take approximately three seconds for the motor to reach RPM setting.**

### 2. Stopping the Electric Motor

1. Press the START/STOP switch to the STOP **( O )** position.

# Maintenance & Handling

### Transporting

- Make sure electric motor is turned off.
- Make sure electric motor is secure.

### Cleaning

- After use, wipe down with a moist cloth.
- DO NOT use water from a garden hose or a pressure washer to spray down electric motor.

### Storage

- Store in a dry area, away from extreme temperatures, high humidity, or drastic temperature changes. Protect from direct sunlight and rain. The recommended storage temperature is between -4°F to 185°F (-20°C to 85°C). **NOTE: Storage temperature range is different than operating temperature range. Make sure the motor is within the operating temperature range prior to use.**

### Disposal

To protect the environment, do not dispose of this product using standard waste collection. Observe the local laws and regulations.

Do not dispose of electric equipment together with household waste material. If electrical appliances are disposed of in landfills or dumps, substances can leak, react and enter the food chain, damaging your health and well-being. For further information on the disposal of this product, please contact your nearest domestic waste collection service.

# Troubleshooting

Troubleshooting is required when an error code is displayed on the digital control center screen. To troubleshoot an error code, please contact our support team at 1-800-864-1649.

| Error Code # | Problem | Solution |
|---|---|---|
| E01 | There is one or mulitple short circuit on the MOS bridge | Contact Customer Support |
| E02 | BLDC drive MOS U phase up bridge open circuit or U phase low bridge short circuit | Contact Customer Support |
| E03 | BLDC drive MOS uv phase up bridge open circuit or v phase low bridge short circuit | Contact Customer Support |
| E04 | BLDC drive MOS uw phase open circuit or W phase down bridge short circuit | Contact Customer Support |
| E05 | BLDC drive MOS v phase up bridge open circuit or v phase down bridge short circuit | Contact Customer Support |
| E06 | BLDC drive MOS vw phase open circuit or w phase down bridge short circuit | Contact Customer Support |
| E07 | BLDC drive MOS w phase up bridge open circuit or w phase down bridge short circuit | Contact Customer Support |
| E08 | Battery undervoltage | Check Battery |
| E09 | Battery overtemperature | Turn off and let sit for 30 mins. If problem persists contact customer support |
| E12 | Operating undervoltage | Check Battery |
| E13 | Operating overvoltage | Check Battery |
| E14 | BLDC motor stalling | Power motor on and off with Power button. If problem persists contact customer support. |
| E15 | BLDC bus current overcurrent first stage | Contact Customer Support |
| E16 | BLDC bus short circuit | Contact Customer Support |
| E17 | BLDC MOS over temperature or low temperature | Turn off and let sit for 30 mins. If problem persists contact customer support |
| E18 | Motor over temperature | Turn off and let sit for 30 mins. If problem persists contact customer support |

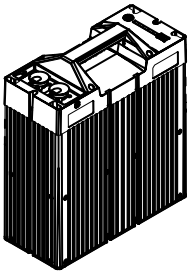
# Troubleshooting
**(Continued)**

| Error Code # | Problem | Solution |
|---|---|---|
| E20 | Analog to digital converter timeout | Contact Customer Support |
| E39 | BLDC phase forced commutation timeout | Contact Customer Support |
| E40 | BLDC u phase or v phase short circuit | Contact Customer Support |
| E41 | BLDC u phase or w phase short circuit | Contact Customer Support |
| E42 | BLDC v phase or w phase short circuit | Contact Customer Support |
| E43 | BLDC motor off line | Check wire connections. If problem persists contact customer support |
| E44 | Reference voltage anomaly | Contact Customer Support |
| E45 | Starting undervoltage | Check Battery |
| E46 | Starting overvoltage | Check Battery |
| E47 | BLDC bus current overcurrent second stage | Contact Customer Support |
| E48 | BLDC bus current overcurent third stage | Contact Customer Support |
| E49 | Fuse blown | Contact Customer Support |
| E50 | The power-on logic is abnormal | Check that start/stop switch is in off position prior to powering on |
| E51 | Battery pack anomaly | Check the 56V DC battery pack manual for trouble-shooting |
| E52 | The temperature of the controller bus capacitor is abnormal | Turn off and let sit for 30 mins. If problem persists contact customer support |

# Additional System Components

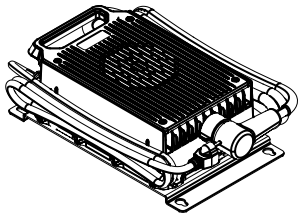
**(Sold Separately)**

**56V DC Battery Pack**



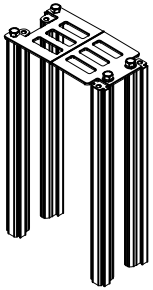
Part# 33-103428

**56V DC Battery Charger**



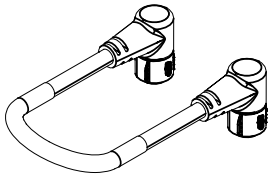
Part# 33-103430

**Battery Rack** (Holds 1 Battery)



Part# 34-100024

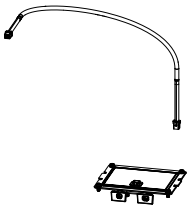
**Power Cables (M x M)**



Part#
33-103427 (10")*
33-103427-3 (3ft)
33-103427-6 (6ft)
33-103427-9 (9ft)
33-103427-12 (12ft)
33-103427-15 (15ft)

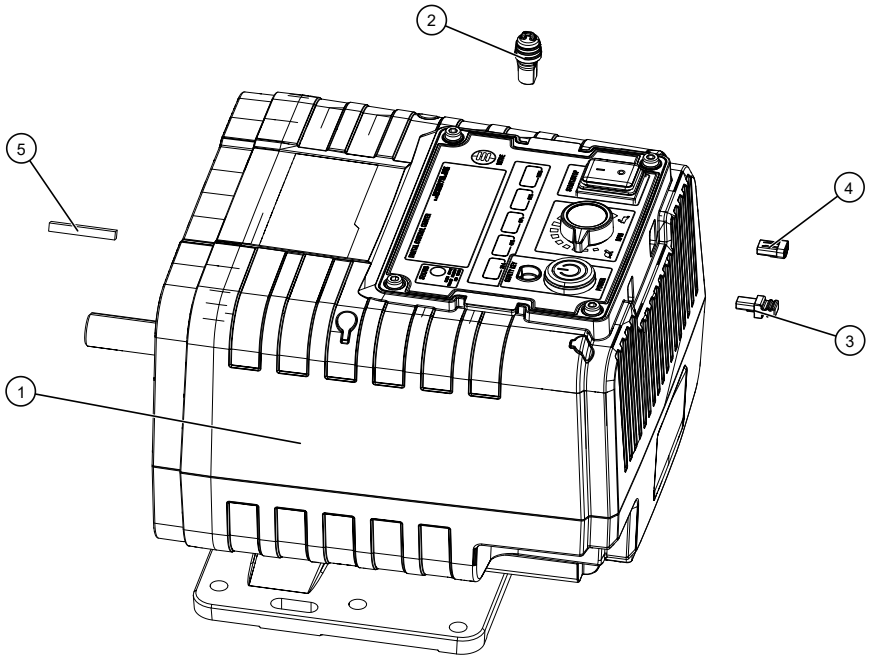
*Used only for connecting batteries together

**Remote Mount Panel Kit**



Part# 34-100023

# Exploded View Diagram




| ID | Name | Description | Qty |
|---|---|---|---|
| 1 | VX-120/VX-200 | Motor | 1 |
| 2 | 33-103435 | Safety Key, Magnetic, VX Motors | 1 |
| 3 | 33-103436 | Weatherproof Plug, Switch Signal | 1 |
| 4 | 33-103437 | Weatherproof Plug, Control Signal | 1 |
| 5 | 33-200228 | Keystock, 3/16” x 3/16” x 1.5”, Undersized | 1 |

# Manufacturer Warranty

Valley Industries shall warranty any motor manufactured, or parts of motors manufactured, to be free from defects in material or workmanship for a period of 3 years from the date of purchase by the original owner. This warranty applies to the original purchaser of the motor and is non-transferable. Verification of purchase is the responsibility of the buyer.

This warranty specifically covers manufacturer defects only. If a defect is found Valley Industries will replace the motor. The user must contact our support team (phone: 1-800-864-1649 / email: sales@valleyind.com) to initiate the return process for a replacement motor. Shipping costs to return the motor to Valley Industries are the responsibility of the customer, while the shipping of the replacement unit will be covered by Valley Industries.

Any misuse, abuse, alteration, improper installation or operation will void the warranty. Any services performed by parties other than Valley Industries will void the warranty.

This warranty specifically excludes the following: failure of parts due to damage caused by accident, fire, flood, windstorm, acts of God, applications not approved by Valley Industries in writing, corrosion caused by chemicals, use of replacement parts which do not conform to manufacturer's specifications, and damage caused by vandalism. Additional exclusions: loss of running time, inconvenience, loss of income, or loss of use, including any implied warranty of merchantability or fitness for a specific use.

Warranty does not cover items subject to normal wear caused by direct physical contact by the public.

This warranty is in lieu of any other warranty, expressed or implied, and Valley Industries assumes no other responsibility or liability outside that expressed within this warranty.

Valley Industries reserves the right to modify the terms and conditions of this warranty at any time and without prior notice. Please refer to the most current warranty terms available at the time of purchase.

To activate your 3-year warranty and streamline any future support, please scan the QR code below or visit: **www.valleyind.com/vipower-warranty-registration.**

Please have your purchase receipt handy during registration.