



Installation Manual
For Ultimate Supplies, LLC
EM2 Electric Motor & Control System

Ultimate Supplies, LLC

3201 Wellington Court, Suite 115

Raleigh NC 27615

www.ultimate-supplies.com

Office: 800-542-7221

E-mail: Sales@ultimate-supplies.com

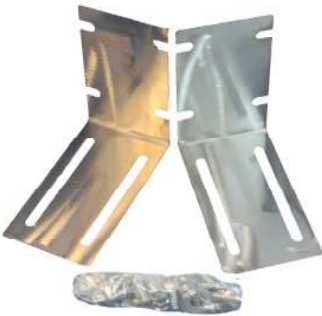
Please inspect all boxes and packaging materials to verify all items and materials needed to complete the installation are present. If items are missing, please contact Ultimate Supplies immediately. Do not attempt to install without all equipment being present.



EM2 Electric Motor. Motor will come with a 10' electrical whip pre-assembled. DO NOT lift motor by electrical connection.



EM2 Control Box. Waterproof Control Box contains all electrical components, inputs and batter backup. .



EM2 Motor Mounting Brackets, nuts & bolts.



Electric Eyes. Transmitter, Receiver and two Junction Boxes.

Eyes are labeled on the back of the device..



Backup Battery Pack



Packet of Anti-seize



IMPORTANT!

TO PROTECT FROM INJURY or DAMAGE TO YOUR EQUIPMENT YOU MUST CAREFULLY READ THE FOLLOWING SAFETY INFORMATION AND WARNING BEFORE INSTALLING, SERVICING OR USING YOUR EM2 MOTOR.

WARNING:

- ◆ When working with electrical or electronic controls, make sure the power has been locked out and all electrical codes are approved.
- ◆ **NO** work of any kind should be done while power is **ON**. Electrical Shock can cause serious injury or death.
- ◆ Qualified Electricians must do all electrical wiring. Wiring must meet ALL Local, State, and Federal Codes.
- ◆ All Units are set up as 115 VAC from Factory. Use only low voltage inputs to our control box from other sources.
- ◆ **Batteries must be installed for proper operation. Use without batteries installed will damage controller and void warranty.**
- This unit supplies its own input current to external inputs. The external equipment must be able to switch 24vdc on or off using relay contacts. Any inputs to this unit must **not** be powered by the external equipment.

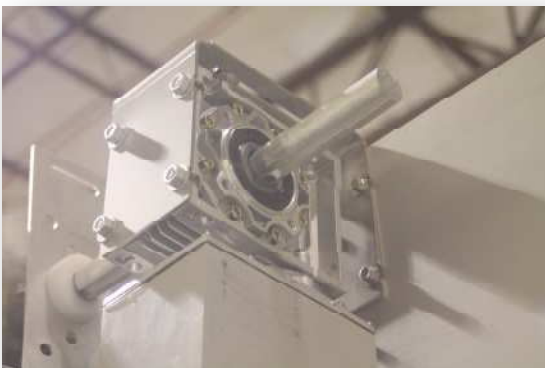
Step 1

- ◇ Install your overhead door or vinyl curtain door as specified by manufacturer. The EM2 Motor will mount to the 1" diameter torsion shaft of any door.

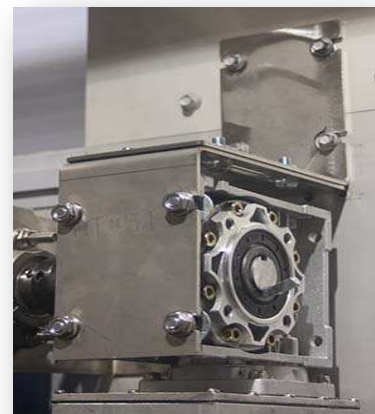
Step 2.

- ◇ Locate and apply Anti-seize packet with a towel or rag to the shaft where the motor will be mounted. The EM2 motor can mount on either side of the door, however, these instructions are based on the motor being installed on the right side of the door as viewed from inside looking out.
- ◇ Slide the motor onto the 1" shaft and install 1/4" key into keyway.

- ◇ **Step 3.** Installation of EM2 Motor and brackets. Locate the motor mounting brackets and hardware. The motor mounts can bolt to the wall and support the EM2 motor in several configurations. The adjustable mounting brackets will allow you flexibility in how the motor is mounted to the wall and secured with the included hardware. You should use the bolts to mount one angle to the wall and to the motor in one of the two configurations as pictured below.



Configuration 1.



Configuration 2.

Installing the EM2 Control Box

- ◇ All EM2 Motors are sent out with a 10' lead whip of wires pre-installed. These wires allow communication between the motor and controller within the waterproof control box. It is recommended to mount the control box close enough to the installed motor as to allow wires to connect through the bottom of the waterproof enclosure and into the proper electrical connections.
- ◇ **NEVER PENETRATE THE TOP or SIDES OF A CONTROL BOX. THIS WILL RESULT IN WATER DAMAGE TO THE ELECTRICAL COMPONENTS AND WILL VOID ALL WARRANTY. You will be responsible for replacement of all damaged components.**
- ◇ Mount the control box to the wall with poly tabs with screws in preset holes. The control box should be mounted level to the floor, squared and secured at all four corners—do not over tighten the screws as you could damage the control tabs and control box housing . The control box should be mounted at least 4' above the floor.



EM2 Control Box.

Inside view of EM2 Control



Inside View of Control Box

Components:

- A– Power Supply
- B– Controller (LCD, 4 Button)
- C– Terminal Strip
- D– Battery Backup

NOTE: Customer responsible for drilling holes for incoming wiring from the motor. Drill ONLY on bottom of Control box. See image for details.

Installation of Photo Eyes

The photo eye kit consists of a transmitter and a receiver and two Nema-4 junction boxes. They are labeled on the back of each eye.

When powered on The transmitter is identified by the GREEN LED within the waterproof flexible housing and the Receiver is identified by RED LED within the waterproof flexible housing.

Eyes are mounted inside the structure about 1-3' off of the ground facing each other. They need to be mounted close enough to the door to prevent the door from closing or reopen the door once the eyes are interrupted.

Photo Eye wiring: Twist the wires with the two black and white stripes together, twist the two solid black wires together. Eyes will terminate in the control box on the terminal strip labeled for the electric eyes. Connect the Black & White into the BLUE (N.O.) and the solid black into the Grey connection.

Wiring Connections inside Control Box

Please see inside of the control box for all wiring. There are labels describing the proper wiring for each input clearly marked next to each terminal. All Wires from the motor are color coded for termination within the control box. Failure to wire these inputs from the motor may damage the motor, controller or both and will not be covered by warranty.

Motor Connection: Three wires originating from the motor are bound Black, White & Shielded will terminate in color coded terminals below AC Power & DC Power Fuse. Colors are coded to match Black to Black, White to White and Shielded to Grey. Three remaining wires from the motor connect in matching colors on terminal strip. Red to Red, Black to Black, Green to Green.

Power Supply will terminate:

- AC Incoming to Black L1
- AC Incoming White (Neutral)
- AC Incoming Green (Ground)

Electric Eyes will terminate:

- Safety Eye to Blue (N.O.)
- Safety Eye to Grey

- ◆ **Battery Backup**– Place battery pack in the control box below the controller. The Red Wire w. Blue Molex Plug wiring harness from the Terminal Strip will plug into the Molex plug on the Battery Pack. **Batteries must be installed for proper operation. Use without batteries installed will damage controller and void warranty.**

Terminal Strip Inside Control Box.

Power Supply Connections.

AC POWER FUSE

DC POWER FUSE

MOTOR CONNECTIONS—BUNDLED WIRES
(Black, White & Shielded) AND THREE
LOOSE WIRES (Red, Black & Green) FROM
MOTOR CONNECT HERE.

ALL COLOR COORDINATED.

MACHINE OPEN TO BLUE

MACHINE CLOSE TO YELLOW

MACHINE COMMON TO GREY

SAFETY EYE TO BLUE (N.O.)

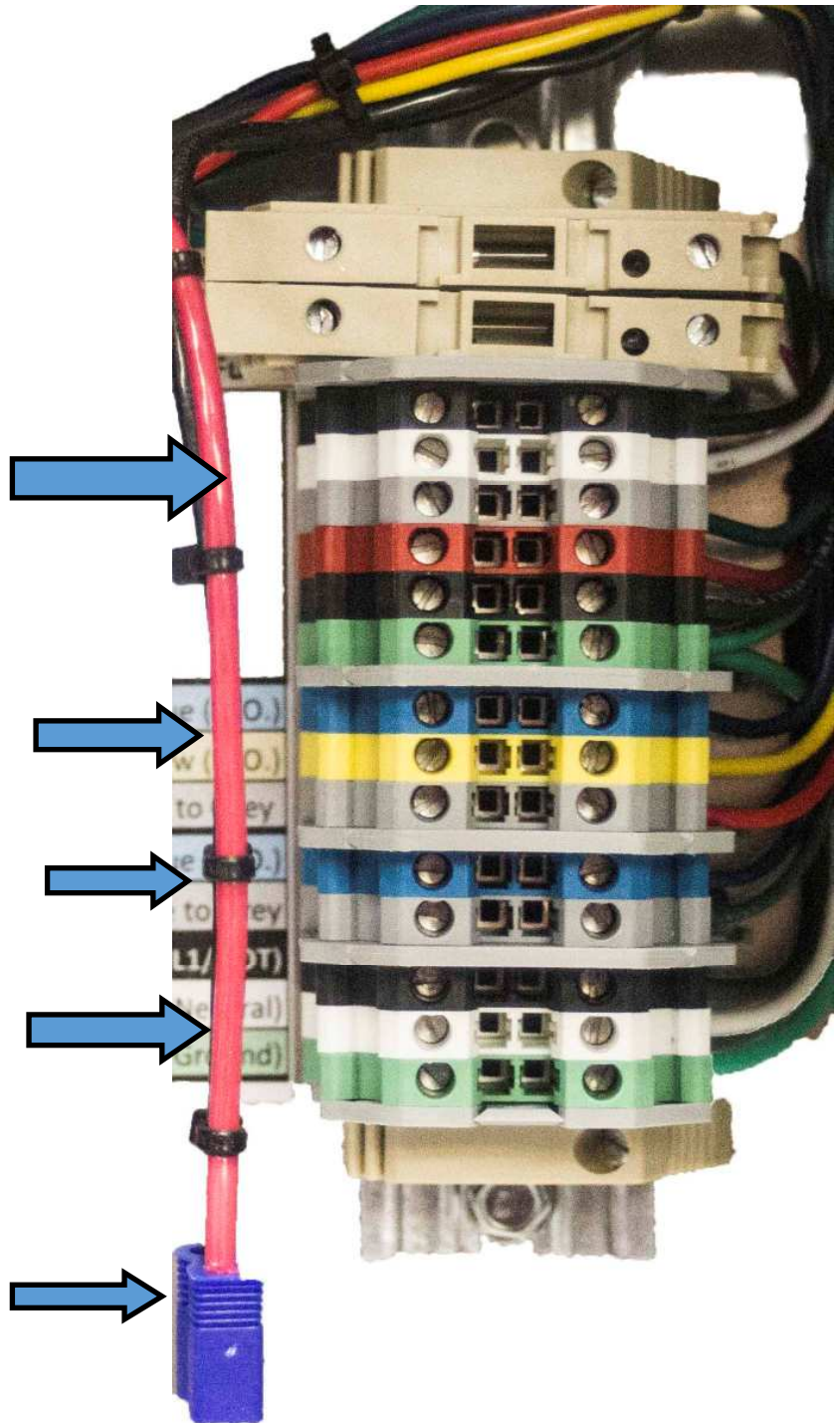
SAFETY EYE TO GREY

AC INCOMING TO BLACK (L1/HOT)

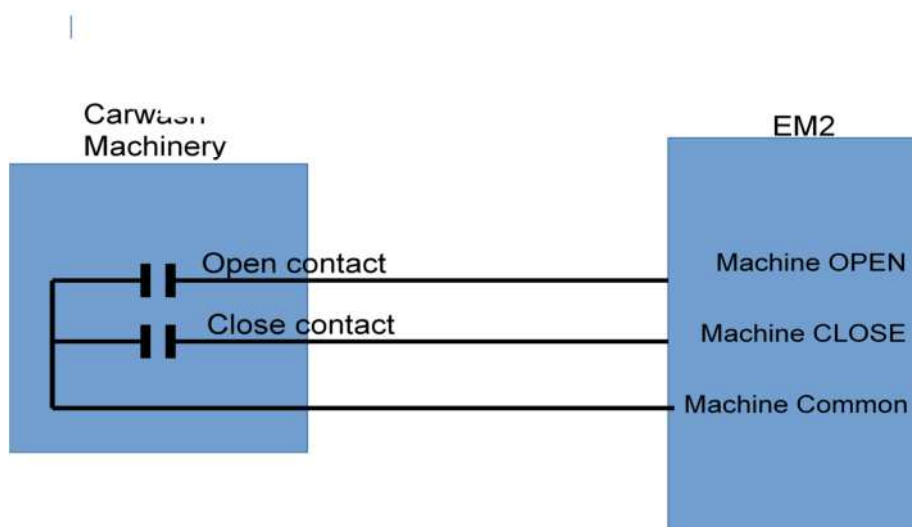
AC INCOMING WHITE (NEUTRAL)

AC INCOMING GREEN (GROUND)

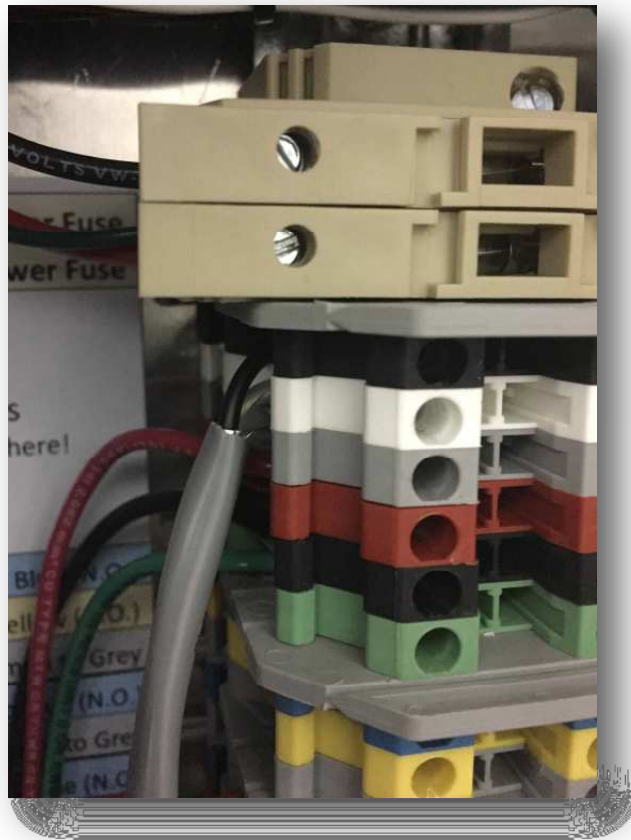
Battery Pack Molex Plug wires to Blue



The Machine OPEN, Machine CLOSE, and Machine Common inputs enable automatic machinery to open and close the door. Since there are many possible ways that this can be done (AC or DC, at many possible voltages), **the EM2 SUPPLIES ITS OWN CURRENT TO ISOLATED CONTACTS IN THE MACHINE THAT IS ISSUING THE OPEN OR CLOSE SIGNAL; NO EXTERNAL CURRENT SHOULD BE APPLIED TO THE Machine OPEN, Machine CLOSE, or Machine Common TERMINALS.**



Example of Wiring Connections of Communication wires from the Motor to the Control Box Terminal Strip.



Steps to Calibrate the EM2 Motor and Controller

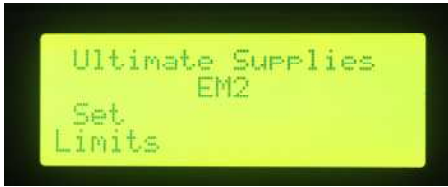


Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

Step 1

Power Up System. Once all wiring is complete and upon your initial start up. The digital screen (Fig. 1) will read:

“Ultimate Supplies EM2 Set Limits.”

Press the button #1 below “Set Limits”

Screen (Fig.2) Should Read:

“Jog Door: UP DWN
CRS Fine CRS Fine”

Press the button #1 below “CRS” (course) to open the door in 2’ increments to the desired location. Press the button #2 below “Fine” to make smaller changes to the desired height. You will have to press these buttons multiple times to arrive at the desired height.

Press Green “Open” Button on the Control Box Cover To Save Height. The screen will read “ OPEN LIMIT SET” (Fig. 3)

Step 2

Press button #3 below “DNW” side “CRS” (course) and button #4 below “Fine” multiple times to close the door to the desired closed position.

Press the Yellow “Close” Button on the Control Box Cover to Save the position.

The Screen will read: “ CLOSE LIMIT SET”

Press the STOP (Red) button on the front of the control box to save the limits.

(Fig. 4)

The door is now Calibrated and will open and close at the programed limits.

Screen will read: “RUN MODE” (Fig. 5)

Step 3.

Run the door several times to verify the door operates to desired height. If you want to change settings, remove power and restart at Step 1.



If you have any questions in the set-up or operation of the EM2 Motor or Control System please call for technical assistance at 800-542-7221.

Thank you for your business!

ULTIMATE SUPPLIES, LLC
3201 WELLINGTON COURT, SUITE 115
RALEIGH, NORTH CAROLINA 27615
OFFICE: 800-542-7221
EMAIL: SALES@ULTIMATE-SUPPLIES.COM
WWW.ULTIMATE-SUPPLIES.COM