

# EM2 CORE

## Simple 2-Motor Relay Shade Controller

### HARDWARE FEATURES

- Universal: 110—240VAC
- 2 Motor Outputs
- 6 Contact Closure Inputs
  - Switch input per motor
  - Master input for all motors
    - high priority—locks out local switches when master is held (e.g. maintained switch)
    - configurable as NO or NC
  - Wire Based Control Groups
- Pluggable Connectors for Easy Installation
- No programming required
- Optional Venetian tilt mode configurable using onboard buttons

### WORKS WITH...

- Roller Shades
- Venetian Blinds
- Louvers
- Rack Arm Systems
- Skylights
- Operable Windows
- And more...



### CONTROL HIGHLIGHTS

- ▶ OUT OF THE BOX FUNCTIONALITY
- ☰ LOW VOLTAGE SWITCH CONTROL
  - DAISY CHAIN WIRE BASED SHADE GROUPS

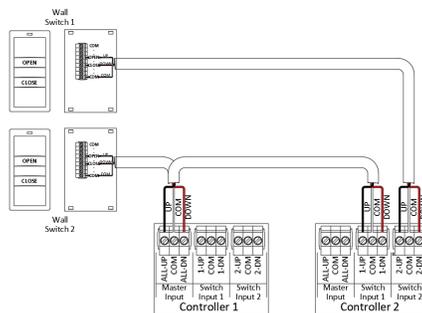
## Product Overview

Embedia's EM2 CORE is a relay control board capable of independent or grouped control of up to two motorized shading systems. It is designed for out-of-the-box low voltage switch control of roller shades, venetian blinds, and more using any standard 4-wire AC motor.

Each controller has 6 contact closure inputs, organized as 3 pairs. The input pairs provide Up/Down switch control for each individual motor plus a master that operates both motors. While the master contact is held, other inputs will be ignored allowing a central override to be implemented using a maintained switch. The master input is configurable for use with Normally Open (NO) or Normally Closed (NC) switches. An optional Stops/Venetian mode allows evenly spaced intermediate stops for any shade as well as accurate tilting for venetian blinds. The operating mode determines switch operation. A single switch can be connected to multiple inputs, on any controller, allowing flexible groups to be created using daisy chain wiring. Group size and configuration is limited only by wiring.

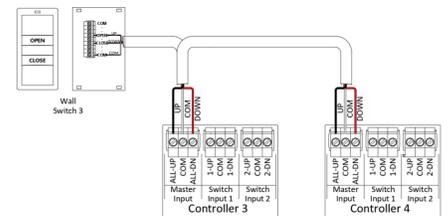
## Switch Wiring and Shade Grouping Example

NOTE: only switch input section of controllers shown in drawing



Motor 2 on Controller 2 operate from Wall Switch 1

All motors on Controller 1 and Motor 1 on Controller 2 operate from Wall Switch 2



All motors on Controller 3 and 4 operate from Wall Switch 3



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## Operating Modes Contact Closure / Switch Functionality

	Standard Mode	Stops/Venetian Mode
Tap	Move to Extent (Open / Close) Tap both contacts simultaneously to stop shade movement	Operate motor for programmed stop time
Hold (>2s)	Move while held (release to stop)	Move to Extent (Open / Close)

An optional **Single Contact Stop** feature allows a tap in the direction of motion to stop the motor in its current position.

## COMPANION PRODUCTS

### Motors

- Any 4-wire Standard Motor

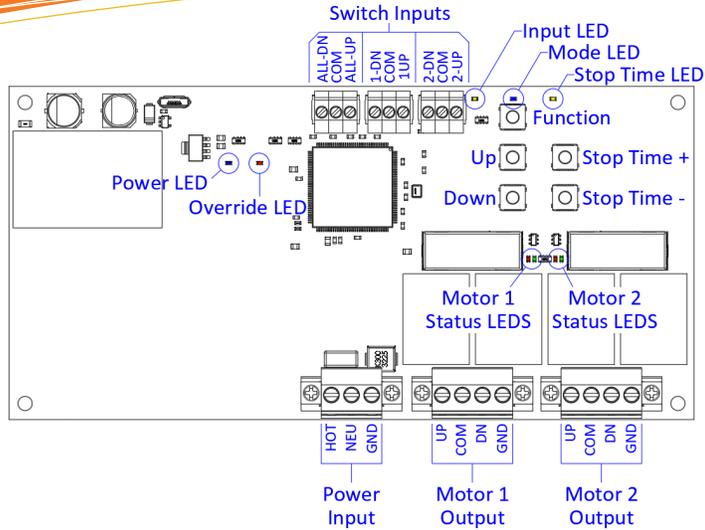
### Switches

- Push-Button:
  - SW7-S2-CC (for 1 group)
  - SW7-S4-CC (for 2 groups)
  - SW7-S6-CC (for 3 groups)
  - Standard "Decora" Styling
  - Custom Engraving Available
- Key Lock:
  - SWKL-3POS-MTN-MS
  - SWKL-3POS-MTN-MF
  - SWKL-3POS-MOM-MS
  - SWKL-3POS-MOM-MF
- Rocker (Decora):
  - SW-SPDT-MOM-DEC
  - SW-SPDT-MTN-DEC
- Toggle:
  - SW-SPDT-MOM-TOG
  - SW-SPDT-MTN-TOG

## WARRANTY

All Embedia products carry a standard 2-year product replacement warranty. Extended 5 and 10 year warranties are available.

For more information on any of our products or services please visit us on the Web at: [www.embedia.com](http://www.embedia.com)



**IMPORTANT: If both left and right hand motor configurations are used, UP and DOWN wires for individual motor outputs may need to be swapped in order to function correctly with grouped switches. To verify wiring, all motors should run in the same direction when operated from the onboard UP/DOWN buttons.**

### Onboard Button Operation

UP / DOWN	Operate ALL Motors NOTE: holding both for >10s will reverse polarity of the master input (N/O ↔ N/C)
FUNCTION	Change Operating Mode Standard ↔ Stops/Venetian hold >10s to toggle <b>Single Contact Stop</b>
Stop Time + / -	Increase/Decrease Stop Time in Stops/Venetian Mode (0.1s increments)

### LED Operation

INPUT	Blink: Switch Press Detected Off: Master input is in NO mode On: Master input is in NC mode
MODE	Off: Standard Mode On: Stops/Venetian Mode
STOP TIME (Single Contact Stop)	Off: Standard 2-Button Stop On: <b>Single Contact Stop</b> enabled Blink: Stop Time + 10s for each long blink (2.5s) + 1s for each medium blink (1s) + 0.1s for each short blink
OVERRIDE	On: Master Override Active Other inputs will be ignored until Master is released Off: All Inputs Operational

## Technical Specifications

Parameter	Specification
Line Voltage Input	Universal 110-240 VAC at 50-60 Hz;
Motor Outputs	2 Motor Outputs; 110-240 VAC (Matched to Line Voltage Input); Max. 10A Per Output (Fuse protected); Max. 15A Combined Total
Low Voltage Inputs	6 Contact Closure Inputs (3 pairs); Up/Down per motor plus Master
Switch Wiring Length	Up to 1500m (5000ft) with 24AWG cable *max length may be reduced by external electrical interference.
Dimensions	Controller Only —170.00mm (6.69") x 82.60mm (3.25") x 20.00mm (0.79")
Enclosure Options	Metal Enclosure; Standard NEMA 1—8" x 8" x 4" (200mm x 200mm x 100mm)

## Ordering Information

Orderable Part Number	Description
CORE-M2-M-CC	EM2 Core—2 motor relay controller in 8" x 8" x 4" metal enclosure
CORE-M2-X-CC	EM2 Core—2 motor relay controller with no enclosure
MOUNT-ST-EBV2	Snap Track Mounting Kit for EBv2 type controllers (option for CORE-M2-X-CC)



Intertek

Conforms to ANSI/UL Std. 325 [508A\*]  
Certified to CAN/CSA Standard C22.2 No. 247 [14\*]  
\*for CORE-M2-M-CC variant

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