



## CX-EMF-2 MULTI-FUNCTION RELAY

### FEATURES

- MICROPROCESSOR CONTROL
- USER SELECTABLE MULTI-APPLICATION DESIGN
- PLUG-IN CONNECTORS FOR WIRING
- ACCEPTS UP TO 7 DRY INPUTS
- 5 FORM C, 3 AMP RELAY OUTPUTS
- 12/24V AC/DC OPERATION
- ALSO AVAILABLE IN ATTRACTIVE METAL CABINET



CX-EMF-2

### DESCRIPTION

**CAMDEN DOOR CONTROLS EMF-2** is a microprocessor-controlled relay designed to easily and quickly handle a variety of specialized door-control tasks.

The dip switches let you choose functions such as:

- ABM Vestibule interface
- Single Restroom Door in Shared Use Facility
- Man Trap
- Normally Secure Restroom Door
- 2 Door Shared use Restrooms
- 2 - 5 Door Airlocks/Interlocks

This smart new design also allows for future development by utilizing expandable technology, and reprogrammable IC's.

All wiring connections and adjustments are made on the exterior of the plastic case with removable terminals to facilitate installation. Simple yet effective potentiometers enable settings to meet varied requirements.

A power LED, 1 status LED, and five relay LEDs aid in set-up and troubleshooting.

A sturdy plastic enclosure is standard, while a handsome metal cabinet with lighted control switches is also available.



CX-EMF-2ABM

# CX-EMF-2 MULTI-FUNCTION RELAY

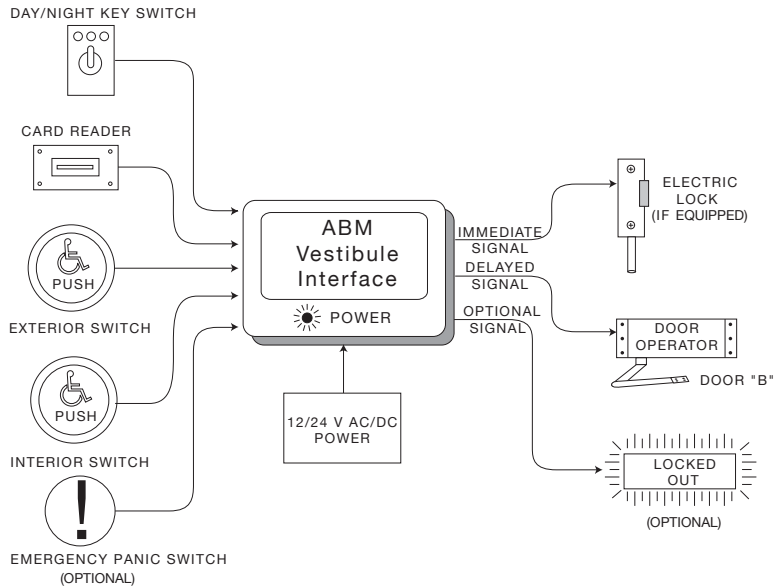


## APPLICATION 1 – ABM VESTIBULE INTERFACE RELAY

This application is designed to interface an automatic door operator with a card reader system such as those used on banks. When the unit is switched into “Night Mode” the electric strike is energized (door is locked) and the exterior switch is removed from the circuit. When a valid card is inserted, the strike unlocks immediately, and the exterior switch is put back into the circuit for an adjustable period, so that if pushed by the user, it will open the door automatically. The inside switch can unlock and open the door at all times. Both the strike and operator hold times are user adjustable.

A new feature added to the EMF-2 is the “Lock-Down” switch input. When activated by a user the relay will ignore the card reader input and energize a relay contact.

In “Day Mode”, the electric strike is unlocked and either switch will open the door. The card reader is electronically removed from the circuit.

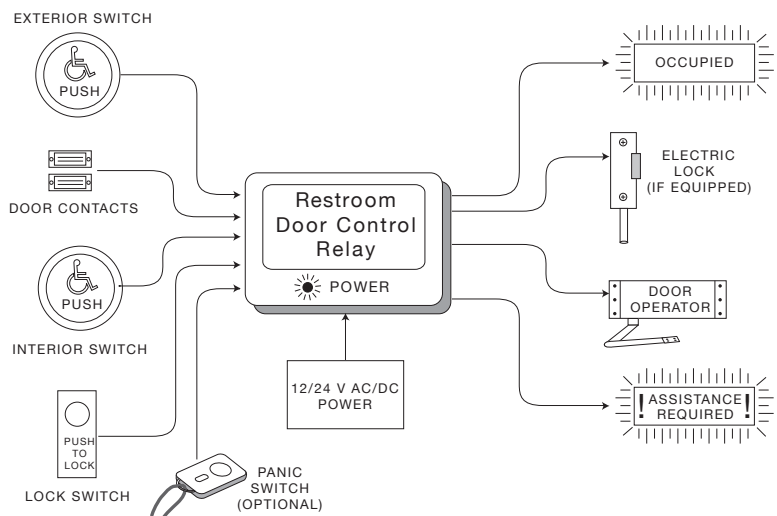


## APPLICATION 2 - SINGLE DOOR UNSECURED RESTROOM INTERFACE

The restroom door control interface is designed to safely control an automatic door operator and lock, on a shared use restroom door in facilities such as nursing homes, hospitals, shopping malls, etc.

Opening the restroom door via the operator is accomplished by pushing the exterior wall switch. The door is then locked by depressing the “Push to Lock” button inside – the strike is energized, and the exterior switch is removed from the circuit. To exit the restroom, simply push the interior wall switch. The door unlocks, opens and resets the system. Should the door be opened manually, the magnet switch will reset the system.

Another feature, unique to the EMF-2, is the emergency input, which allows a panic switch to unlock, open the door (optional), and send an emergency signal for assistance. The output can be maintained or pulsed. The pulse times, strike and operator delay times are all user adjustable. As an added safety feature, the relay can be set to automatically reset and unlock after 15 minutes time.



# CX-EMF-2 MULTI-FUNCTION RELAY

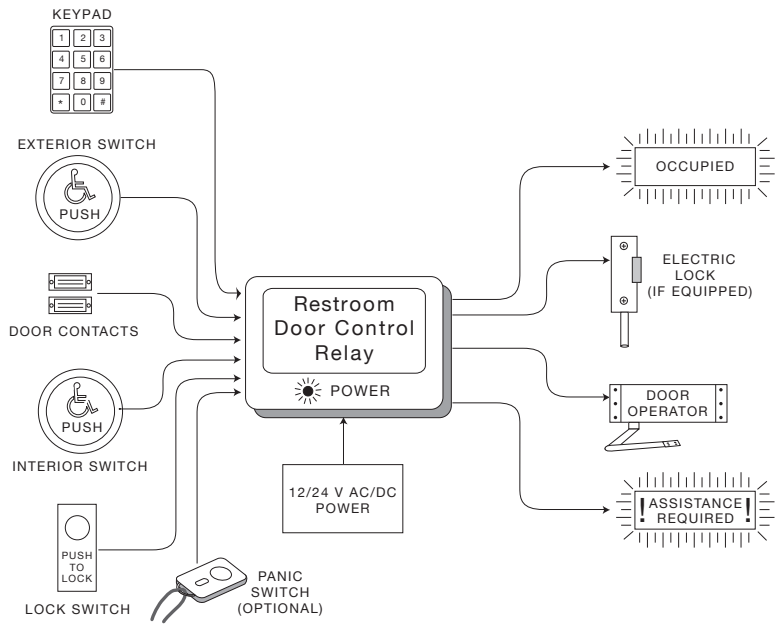


## APPLICATION 3 - SINGLE DOOR, NORMALLY SECURED RESTROOM DOOR

This application is a shared-use single (normally locked) restroom door in facilities such as doctors offices, hospitals, shopping malls, etc. The relay provides control of the lock, operator, and switches, to provide the utmost in facility security, safety for the occupants, yet still be easy to install and program.

In this application the door is normally locked whether occupied or not. It may be unlocked by key-switch, keypad, or another credential. The EMF-2 can be configured to activate the door operator immediately, or after pressing the wall-switch within the (adjustable) time period. Once the door has closed, pressing the "Push to Lock" button removes the exterior keypad / key-switch from the circuit. The electric lock will pulse twice to let the user know that the door is secure, and an output is available to light an Occupied LED (s).

To exit the restroom, simply push the interior wall switch. The door unlocks, opens and resets the system. Should the door be opened manually, the magnet switch will reset the system. Unique to the EMF-2 is the emergency input, which allows a panic button to unlock, open the door (optional), and send an emergency signal for assistance. The output can be maintained or pulsed. As an added safety feature, the EMF-2 can be set to automatically reset (and unlock) after 15 minutes time.



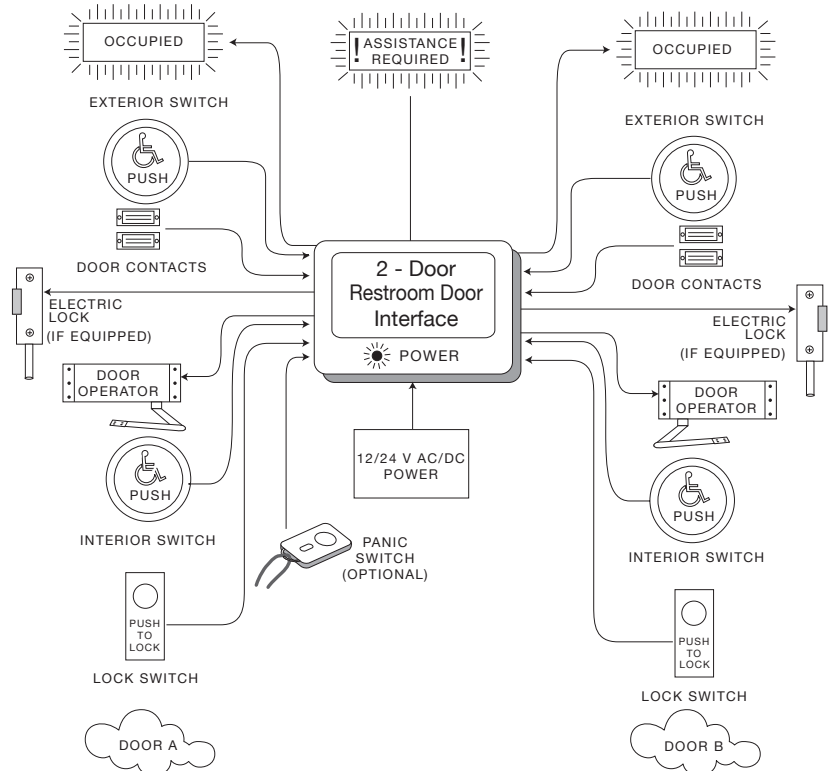
## APPLICATION 4 - 2 DOOR SHARED-USE RESTROOM

This application is a shared-use (normally unlocked) restroom between two suites (and therefore utilizing two doors), in facilities such as nursing homes & hospitals, etc. The relay provides control of both locks, operators, and all switches, to provide the utmost in flexibility, safety for the occupants, yet still be easy to install and program.

Either door is opened automatically by pressing the respective exterior wall switch. Once the door has closed, pressing either "Push to Lock" button inside then locks both doors – the strike is energized, and exterior switches are removed from the circuit. To exit the restroom, simply push either interior wall switch. The respective door unlocks, opens and resets the system. Should either door be opened manually, the magnet switch will reset the system.

Unique to the EMF-2 is the emergency input, which allows a panic button to unlock, open (one or both) door(s), (optional), and send an emergency signal for assistance. The output can be maintained or pulsed. As an added safety feature, the EMF-2 can be set to automatically reset (and unlock) after 15 minutes time.

It is strongly encouraged to utilize the dry contact output (Relay #5) or the LED output to indicate "Occupied" on the exterior of both doors to let others know the restroom is in use.



# CX-EMF-2 MULTI-FUNCTION RELAY



## APPLICATION 5 - TWO TO FIVE DOOR AIRLOCK/INTERLOCK

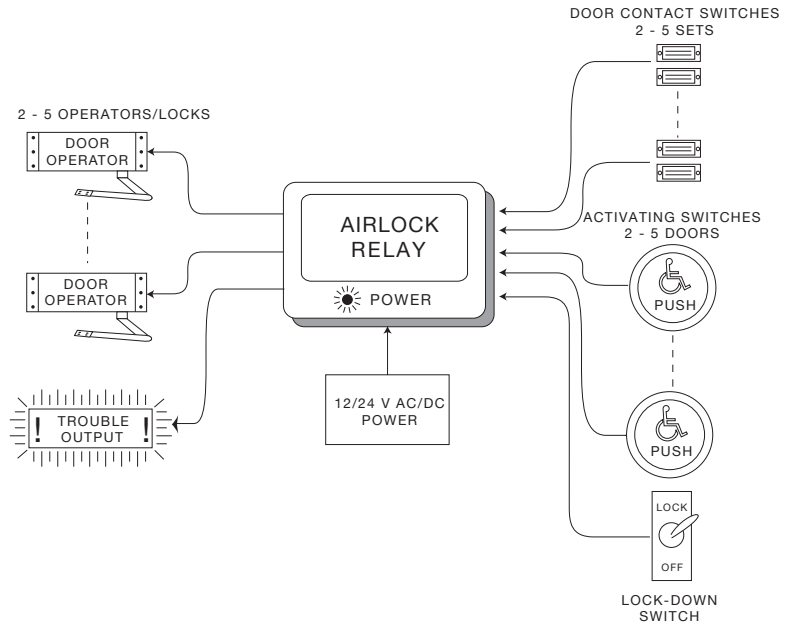
This function is designed to control up to 5 sets of sliding, or swinging doors. The relay will allow only 1 door to be open at a time.

It accomplishes this by a Door Sense input, such as a magnetic contact switch, located at each door. If the Door Sense determines that a door is open, then it will not allow a second door to open, but remembers the request to open and allows it once the first door has closed.

The outputs may be wired to electric locks, or to automatic door operators. The inputs could be simple door switches or a secure means such as keypads, Prox readers, etc.

For 2-door airlocks, the installer can set up "Autocrossing" whereby after triggering one door, the second door will activate after the first door closes. (This is also known as bi-directional door sequencing).

Should a door become stuck open or closed, a Trouble signal is output after a predetermined time. The EMF-2 also includes a "Lock-down" input that resets the system and/or disables all "Open" requests.



## APPLICATION 6 - TWO DOOR MANTRAP

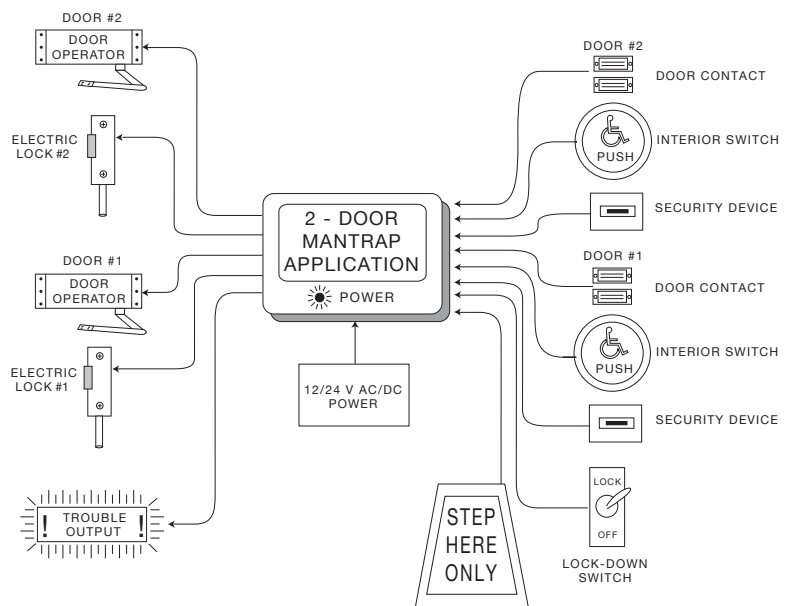
This function is designed to control a 2-door mantrap with or without automatic door operators. The relay will allow only 1 door to be open at a time.

It accomplishes this by a Door Sense input, such as a magnetic contact switch, located at each door. If the Door Sense determines that a door is open, then it will not allow a second door to open, but remembers the request to open and allows it once the first door has closed. (The memory feature may be disabled)

An input is available for a contact mat on the floor to ensure that only one person is within the mantrap at any time.

Should a door become stuck open or closed, a Trouble signal is output after a predetermined time.

Finally, a "Lock-down" input is available which immediately locks all doors and disables further egress/ingress.



# CX-EMF-2 MULTI-FUNCTION RELAY



## SPECIFICATIONS

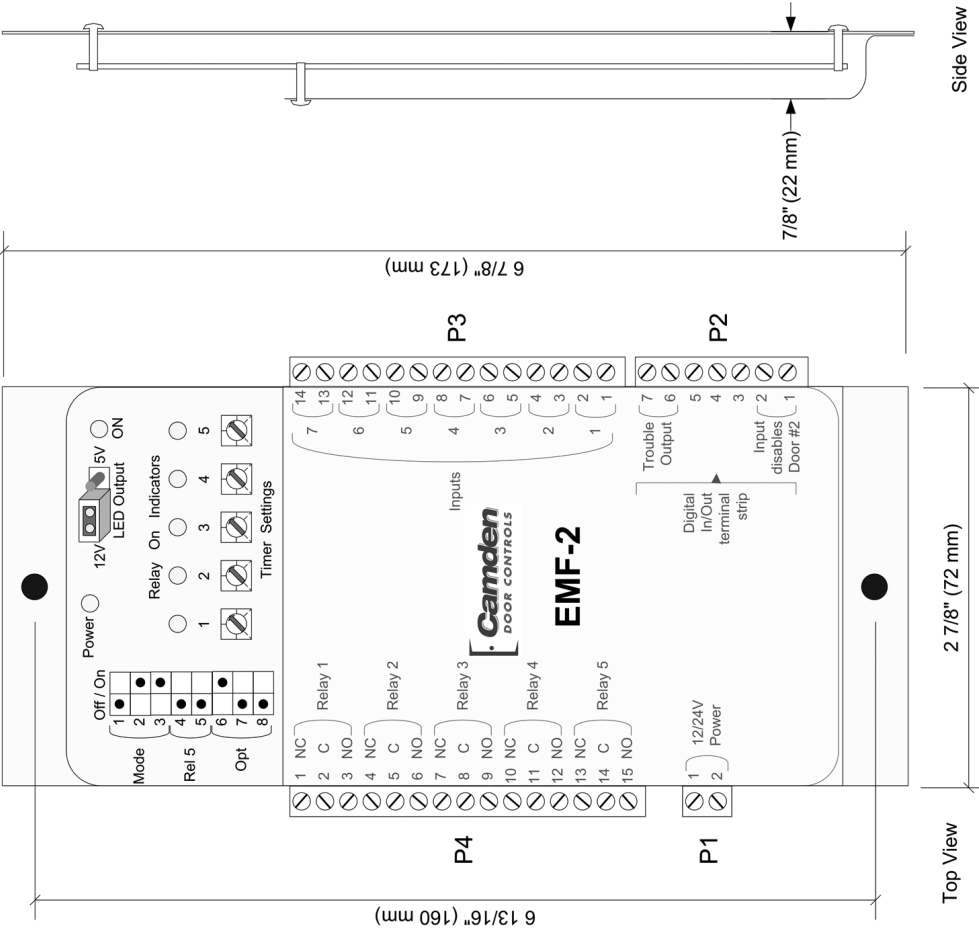
	CX-EMF-2	CX-EMF-2M
DIMENSIONS	6 7/8" L x 2 7/8" W x 7/8" D (173 mm x 72 mm x 22 mm)	12" L x 7 1/2" W x 3 3/4" D (305 mm x 190 mm x 95 mm)
MOUNTING	DOUBLE SIDED FOAM TAPE	4 x #8 SCREWS
ENCLOSURE	GRAY PLASTIC CASE	BEIGE METAL CABINET
OPERATING VOLTAGE	12/24V AC/DC	
CURRENT DRAW	150 MA NOMINAL, 500 MA MAXIMUM	
RESPONSE TIME	.3 SECONDS	
MODE SELECTOR	VIA 3 DIP SWITCHES	
INPUTS	7 DRY MOMENTARY CONTACTS AND 1 DIGITAL INPUT	
RELAY OUTPUTS	5 SPDT RELAYS AND 1 DIGITAL OUTPUT	
CONTACT RATINGS	3 AMPS @ 30V DC	
ELECTRICAL LIFE	500,000 OPERATIONS @ 1/2 RATED CAPACITY	
TIME DELAYS	5 POTS ADJUSTABLE FROM 1 - 30 SECONDS	

## ORDERING INFORMATION

Magnetic door contacts, activating devices, and power supplies shown in above applications are all sold separately. Contact factory for assistance in choosing the appropriate input/output devices.

MODEL	DESCRIPTION
CX-EMF-2	RELAY SUPPLIED IN STURDY GRAY PLASTIC CASE
CX-EMF-2M	RELAY SUPPLIED IN LOCKABLE BEIGE METAL CABINET WITH ILLUMINATED ON/OFF SWITCH FOR DOOR STATUS.
CX-EMF-2ABM	RELAY SUPPLIED IN LOCKABLE BEIGE METAL CABINET WITH TWO ILLUMINATED ON/OFF SWITCHES FOR DOOR STATUS.
CX-MDC	ONE SET OF MAGNETIC DOOR CONTACTS. USED IN MAN-TRAP, AND RESTROOM DOOR APPLICATIONS

# CX-EMF-2 MULTI-FUNCTION RELAY



**Camden DOOR CONTROLS**  
 5502 Timberlea Blvd  
 Mississauga, Ontario  
 L4W 2T7

**Camden Door Controls**  
 EMF-2 Diagram 1, Electrical and Mechanical  
 DRAWING No: DRG-EMF-2\_01  
 FILENAME: EMF-2 Diagram 1.vsd

SCALE: NONE | DRAWN BY: DGW | DATE: 03/24/10 | REVISED: 06/08/10

Connector	Terminal	Label	Function
P1	1	Power Input	12/24 Volts AC/DC
	2	Power Input	Non-polarized
P2	1	Ground	Card-Reader Input (aka - Digital Connector)
	2	Blue (or Brown)	
	3	N/C (or Yellow)	
	4	CR Power +5V	
	5	Orange (output 1)	
	6	Output 2	
	7	Ground 2	
P3	1	Dry 1 Input	Non-powered Input 1
	2	Dry 1 Input	Non-powered Input 2
	3	Dry 2 Input	Non-powered Input 3
	4	Dry 2 Input	Non-powered Input 4
	5	Dry 3 Input	Non-powered Input 5
	6	Dry 3 Input	Non-powered Input 6
	7	Dry 4 Input	Non-powered Input 7
	8	Dry 4 Input	Form C
	9	Dry 5 Input	Form C
	10	Dry 5 Input	Form C
	11	Dry 6 Input	Form C
	12	Dry 6 Input	Form C
	13	Dry 7 Input	Form C
	14	Dry 7 Input	Form C
	15	Dry 7 Input	Form C

NOTE: Pin 2 Connector. When connecting to Camden Card Reader in ABM Mode it is possible to read all cards by wiring the Blue wire to Pin 2, or only Cards beginning with a 4, 5, & 6 by wiring the Brown wire (Data) to Pin 2, and the yellow wire (Clock) to pin 3.

Dip	Dip	=
4	OFF	1
5	ON	2
6	OFF	3
7	ON	4

RELAY 5 CHART  
 To have Relay 5 shadow another relay, set dipswitch as shown at right



5502 Timberlea Blvd. Mississauga, ON Canada L4W 2T7 • Toll Free: 1 877 226-3369 (CAMDEN9)  
 Tel: (905) 366-3377 • Fax: (905) 366-3378 • E-mail: info@camdencontrols.com • www.camdencontrols.com

LIT-SP-EMF2R1



Certified ISO 9001: 2008

FS 541752