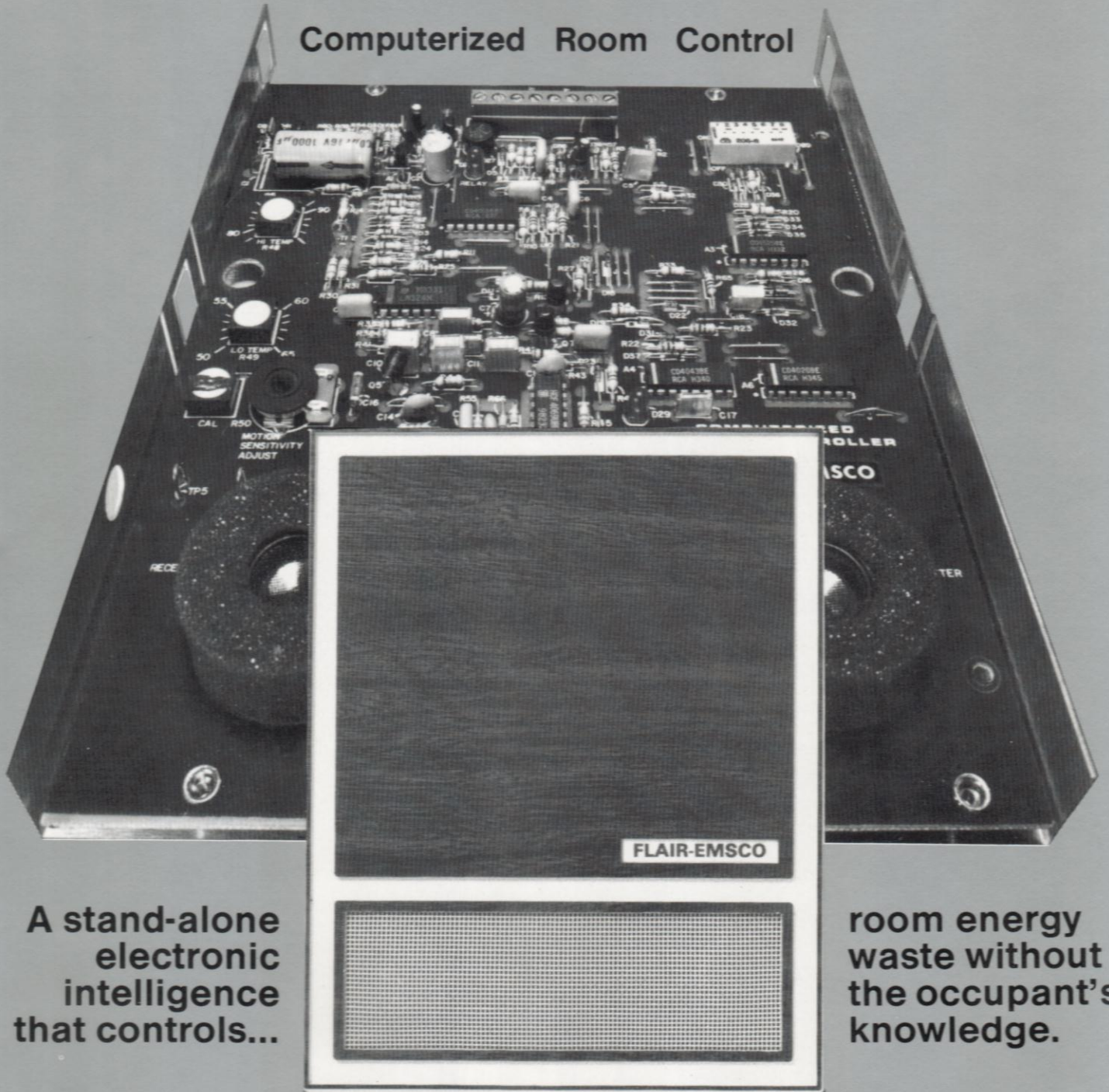


# CRC

Computerized Room Control



A stand-alone  
electronic  
intelligence  
that controls...

room energy  
waste without  
the occupant's  
knowledge.

**FLAIR-EMSCO CORPORATION**

## Introduction

EMSCO created the Computerized Room Control (CRC) in 1979. This stand-alone system contained a logic circuit that, when activated by a concealed door switch, could combine the ability to motion-scan a room with a programmable time-entry sequence that accurately controlled most occupant energy waste situations.

In 1984 EMSCO joined the Flair group of companies. For over 30 years Flair has been a manufacturer of HVAC (Heating, Ventilating, Air Conditioning) products.

Flair's knowledge, experience and engineering ability have become major assets for the CRC, in adding many state-of-the-art enhancements.

This sensor activated, energy saving device promises to be the solution to the 20% to 60% of energy waste generated by the occupant, without causing inconvenience. During the last 7 years documented tests performed by independent energy experts in cooperation with the buildings' management have proven beyond any doubt the CRC's ability to perform as promised (details on request).

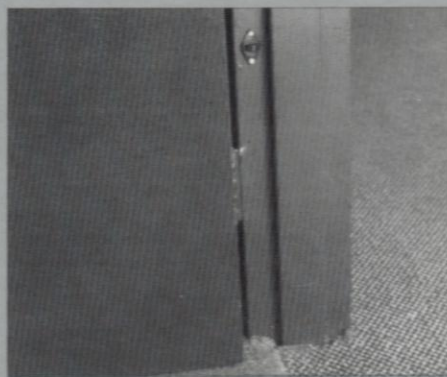
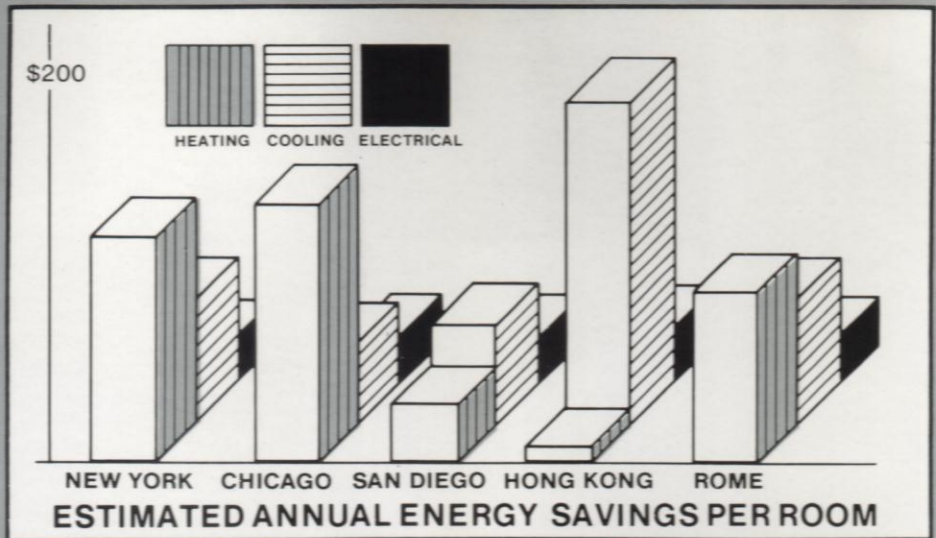
Unsuccessful attempts at duplicating the CRC's phenomenal results have ranged from door keys, chains and bolts and motion-only detectors to the expensive and cumbersome Front Desk Controller.



CRC is designed to blend with all decors and was developed for installation in any new or existing facility.

### How the CRC functions.

The FLAIR-EMSCO CRC is a combination of the most advanced solid-state control circuitry, an ultrasonic motion detector and a concealed door switch which automatically determines if a room is occupied. The door switch is activated by the opening and closing of the door. After a seven second delay (to adjust for the settling of drapes due to door closing) its circuitry activates the CRC's ultrasonic transducer. If motion is detected, the CRC allows complete control of the HVAC system by the occupant. At this time the CRC **locks in** occupant controlled mode. If motion is not detected (room vacant), or if the door is left open, the CRC retains control and overrides the occupants temperature selection, setting back the thermostat to energy saving levels.



Concealed door switch.

The CRC refuses to participate in the wasteful heating or cooling of the outdoors. The door switch senses a "door open" condition and automatically turns the HVAC to a management preset status when the door has been left open for a period of time (2-8 minutes).

FLAIR-EMSCO'S CRC patented design is the only system available that provides total control to the occupant while in the room. No personal involvement by either occupant or management is required to activate or control the CRC. Once the high and the low setback limits are set the system, automatically monitors the occupants arrivals and departures, taking control only when conditions require its assistance.

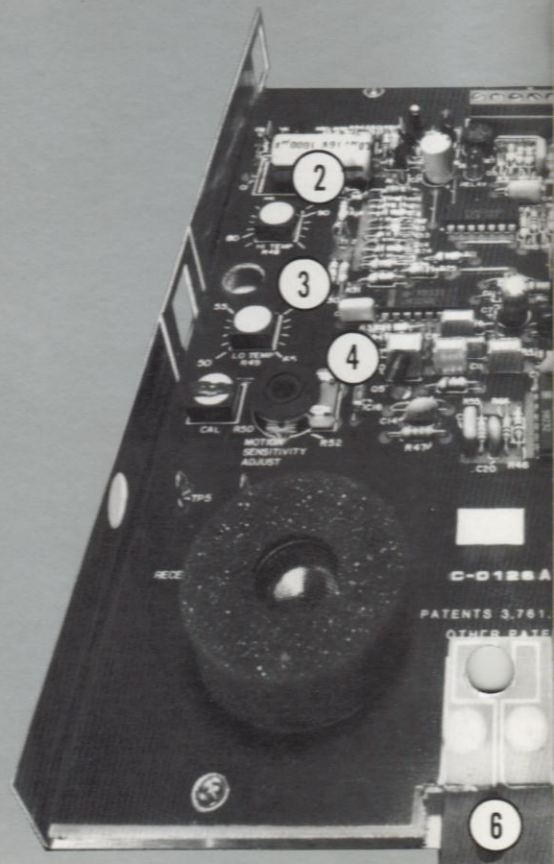


CRC functions with all HVAC equipment.

### Maintains occupant comfort.

One major concern of management is the occupant's comfort. It is to this end that the FLAIR-EMSCO CRC fulfills all of its obligations. Internal adjustments that are controlled by management are open door takeover limit, high and low temperature limits, ultra-sonic sensitivity, internal high speed clock for testing and motion only capability with adjustable time delay.

The occupant using the room will be totally unaware of the CRC's operation since it controls the HVAC and lighting only when the room is vacant. The CRC also assures occupant comfort by preventing temperature setbacks in rooms where a person is sleeping.





Relief from the waste in high energy bills.

### Documented energy savings.

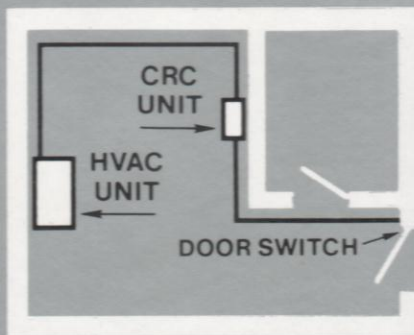
FLAIR-EMSCO has test results, and documentation from past CRC installations showing energy savings at various temperature settings. These savings range from 20% to 60%. A local FLAIR-EMSCO representative will be happy to share this information with you and help to set up a maximum savings plan for use in your installation.

### Immediate savings pay for CRC.

It is obvious that utility prices will continue to increase, so the best time to act is now! A FLAIR-EMSCO sales representative can help to tailor various purchasing or leasing plans which allow the generated savings to pay for the system, while requiring little or no capital investment.

### Additional energy savings generate additional profits.

Combine the utility expense savings with lower equipment maintenance expenses (because of less run-time), with Investment Tax credits, Federal Energy Tax Credits, reduced employee involvement, and lower repair costs due to highly reliable components and it becomes obvious just what an excellent investment the CRC is. Actual savings will depend upon particular conditions, including geography, climate and operating procedures. However, the average pay-back ranges from 12 to 24 months.

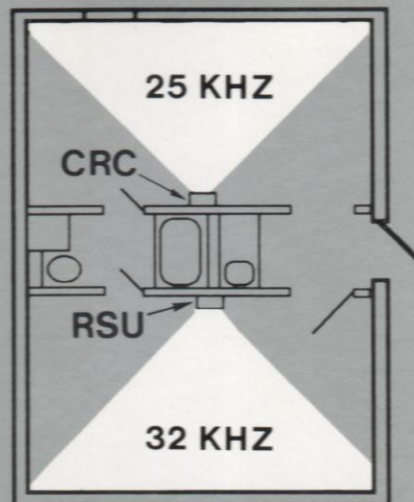


Typical installation of single room wiring.

### Installation and maintenance.

CRC installation can be accomplished by existing maintenance personnel or by FLAIR-EMSCO's network of professionally trained service representatives. Installation is simple and easy because all connections to the CRC are low voltage and made entirely within each room. No expensive master station is required. Installation time averages one man-hour per room. CRC is designed for installation in new and existing facilities. The tough PVC housing protects the electronics and pre-set adjustments from damage and abuse. Since special tools are required for removal of the cover, unauthorized tampering with the controls is prevented. The CRC panel mounts easily with molly bolts, toggle bolts or masonry screws.

FLAIR-EMSCO also offers an optional Remote Sensor for installations where more than one room is involved with a single control point. Externally the Remote Sensor looks like the CRC unit.



Remote Sensing Unit (RSU) operating on a different frequency is used in conjunction with the CRC when suites are monitored.

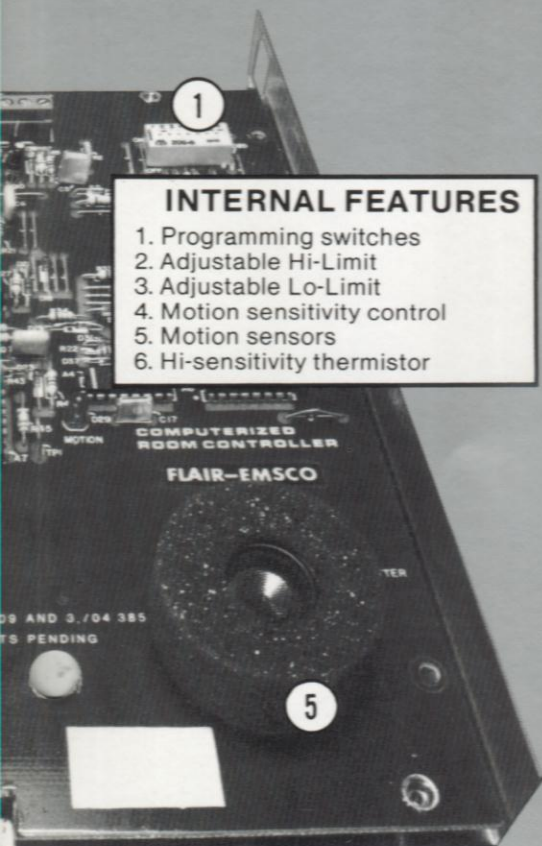
### Warranty and Extended replacement contract.

The factory maintains a network of professionally trained service representatives to assist in installation and maintenance of CRC systems. The CRC carries a Limited Warranty for one year against defects in materials or workmanship. In the unlikely event of the removal of an inoperable CRC the room's HVAC would continue to operate in its normal mode, assuring room availability.

An Extended Replacement Warranty is available for a low annual fee per room. Complete details on this exceptional warranty are available from the factory.

### Put us on trial.

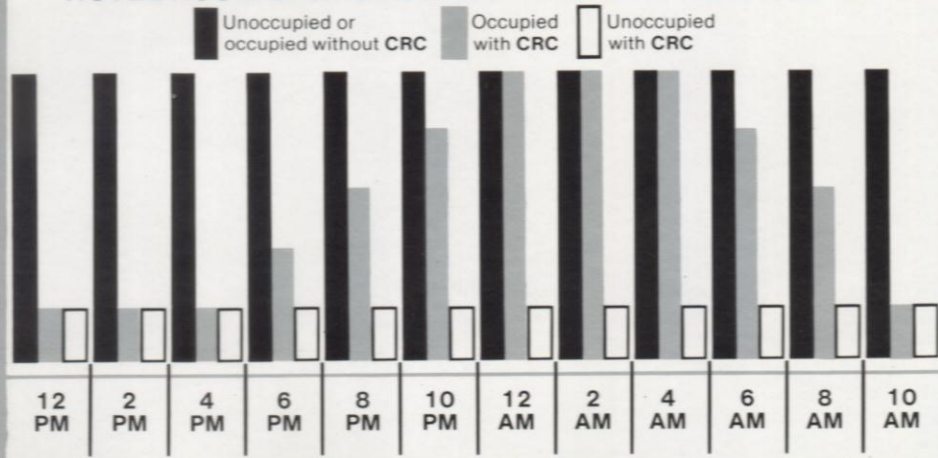
We know the value of onsite evaluation. That's why we offer a limited use test of our equipment. Order up to 10 units of any type under our test and evaluation program. Put them into use for up to sixty days. During that time, we will assist you in evaluating the effectiveness of the product. We will bill you at the end of the sixty-day period. If you are not completely satisfied just return the equipment and the invoice. You incur no obligation. We are confident that you will be pleased with the results.



### INTERNAL FEATURES

1. Programming switches
2. Adjustable Hi-Limit
3. Adjustable Lo-Limit
4. Motion sensitivity control
5. Motion sensors
6. Hi-sensitivity thermistor

### HOTEL ROOM ENERGY USE IN TYPICAL 24 HOUR PERIOD



## SPECIFICATIONS

### LISTINGS:



U. L. and CSA listed interface units are available.

**PRIMARY POWER:** 24 VAC, 60 Hz.

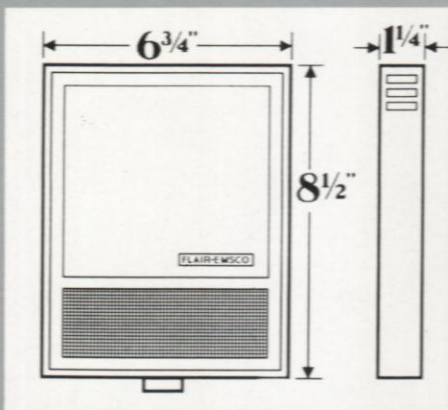
**INPUT:** SPST, normally open, reed type door switch, contacts closed when door is closed, open when the door is open. To monitor all doors, wire all switches in series. Door switch(es) must be capable of operating on 24VDC, 5 MILLIAMPS.

**OUTPUT:** 24VDC. 0.6 AMPS.

### ULTRA-SONIC. CIRCUITRY:

Constant transmission 25KHz. Approximate principal scanning range, 60 degree cone to 30 feet. Dual-cone transducer design. Remote sensor 32 KHz so as not to interfere with main CRC.

**CIRCUITRY:** All solid-state assembly, pre-calibrated and fully tested.



**CABINETRY:** The PVC injection molded cover snap-locks to the base assembly with a closure which requires a special tool for removal, thus preventing unauthorized tampering.

**INSTALLATION:** Base attaches to wall with molly, toggle bolts, or masonry screws. All wiring is low voltage 18 gauge thermostat wire, routed to base and connected by internal pressure terminals.

**FIELD TESTING:** An internal "walk-test" light allows the installer to check motion sensitivity at any time. An internal high speed clock allows testing of the complete operating cycle in a fraction of the normal time span (32 minutes in 20 seconds).

**UNIT FAILURE:** External control wiring is connected so that the system fails safe to an HVAC ON mode.

### INTERNAL ADJUSTMENTS:

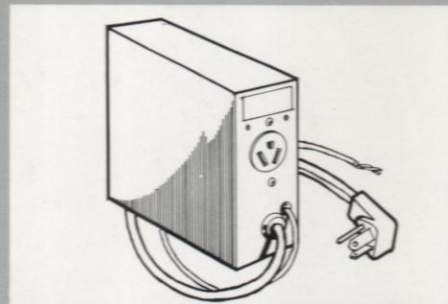
- (1) Open/close delay: (0 to 8 minutes) determines length of time HVAC will run when door is opened or closed and no motion is present.
- (2) Initial Delay: 7-second delay for the environment to settle after the door closes before starting motion detecting process.
- (3) Motion only: (2 to 32 minutes) enables unit to operate regardless of the status of the door switch.
- (4) Temperature Limits: (Labeled HI TEMP-LO TEMP) -HI LIMIT 78 degrees to 95 degrees, LO LIMIT 50 degrees to 65 degrees. Turns on HVAC if unoccupied room temperature drifts beyond either limit. (Screw driver adjustment)
- (5) Ultra-Sonic Sensitivity: Pre-calibrated at factory for average setting.

### LIMITED WARRANTY

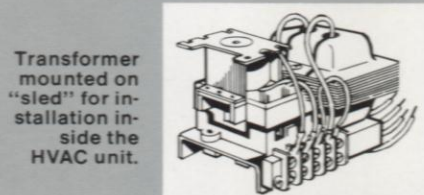
No charge for repair or replacement for defects in materials or workmanship for one year. Units must be returned prepaid to FLAIR-EMSCO through an authorized representative after receiving advance authorization. See complete warranty for details and exceptions.

## COMPONENTS

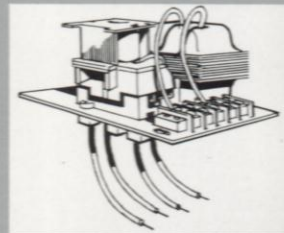
Interfaces are available in multiple configurations to accommodate any type of installation.



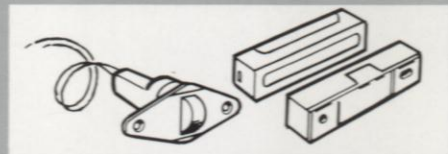
Available in various voltages, mounted in sturdy, attractive enclosures for external surface mounting. Various plugs available.



Transformer mounted on "sled" for installation inside the HVAC unit.



Mounted on a 4"x4" box plate for ease of installation in remote hardware applications.



A selection of door switches is available. Standard magnetic, surface mounted; standard roller, flush mounted; and wide gap magnetic, surface mounted.



### FLAIR-EMSCO CORPORATION

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## REPRESENTED BY:

