Energy Management System

Tools Required

- Cordless driver with magnetic post and following tips
  - #2 Phillips

Hardware Required (not Included)

- 4 - #8 X 1" Panhead wood screw.

Installation

Warning: Connection to building power must be completed by a licensed electrician. Installation must be in accordance with National Electrical Code and local codes. Always determine that the wiring assembly is connect to only one source. Be certain all sources are disconnected prior to any servicing.

1. Affix Energy control module to stationary surface such as the underside of a worksturface using 4 -#8 X 1" wood screws.
2. Wire Energy control module per attached instructions
3. Install Sensor per attached instructions

Kimball Office

circuiTrac ™

ENERGY MANAGEMENT SYSTEM

Installation & Setup

1.0

Byrne Electrical Specialists, Inc.
320 Byrne Industial Drive
Rockford, MI 49341
616.866.3461 tell
800.999.3567 toll free

custserv@byrne-electrical.com
www.Bryne-Electrical.com

11/11/2014

List of Figures

Section 1: Introduction

Thank you for your recent purchase of the CircuiTrac ™ Energy Management System. Our mission at Byrne Electrical Specialists is to provide reliable, accessible and affordable technology that gives the right tools to foster a culture of conservation and sustainability.

We stand behind our products and hope you will enjoy the experience of owning a CircuiTrac Energy Mangement System. Your satisfaction is very important to us and we are available to provide you product support, answer your questions and address your concerns.

Please contract us Monday through Friday 8:00am-5:00pm EST:

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ASHRAE Compliant

Soon, business will be required to comply with ASHRAE 90.1-2010. CurcuiTrac meets or exceeds all of the compliant criteria.

California Title 24
Part 6 Compliant

Electrical Specifications

ELECTRICAL RATINGS

AC Input	Rated 120/208V, 120/240V
	Maximum Rated Relay voltage 277V
Line 1 Power Supply Specification	85-264 Vac, 50/60 Hz
Frequency Range	50/60Hz
Power Rating per Circuit	2.5KW

COMMUNICATIONS

Protocol	SIMMSnet
Network Address Available	65,000

RF. Communication

Operating Frequency	2.4GHz
Number of Selectable Channels	14
Range	Indoor: 300ft (90m)
	Outdoor: Line of sight one mile (1.6km)
Output Power	63 mW (+18dBm) NA
	10mW (+10 dBm) International
Sensitivity	-100 dBm
Certifications	FCC Part 15.247
	CE ETSI
	Canada 4214A
	Japan R201WW07215214
	Australia C-Tick

MECHANICAL

Weight	2.5 pounds
Size	8.75" x 2.5" x 1.75"

ENVIRONMENTAL CONDITIONS

Operating Temperature	-20 ° to 30 °C
Storage Temperature	-40 ° to 85 °C
Humidity Range	<95% RH (non-condensing)
Altitude of Operation	3 km

SAFETY

UL/cUL	UL1286/UL183

EMC TEST

Conducted and Radiated Emissions	FCC part 15 Class B
Electro Static Discharge (ESD) EN61000-4-2	Level 4
Radiated RF Immunity EN61000-4-3	Class 3
Part 4 RF EM field Immunity, EFT/Burst EN61000-4-4	Level 3
Surge Immunity test EN61000-4-5	Level 3
Immunity to conducted RFI EN061000-4-6	Class 3

Power Frequency Magnetic Field Immunity EN061000-4-8	Level 4	
EMC Voltage Dips, Interruptions and voltage Variations EN061000-4-11	Preformance Criteria B Class 3	
Radio Disturbance Characteristics ISM Radio Equipment EN55011	Class B	
Harmonic Current Emissions BSI BS EN61000-3-2	Class A	
Voltage changes, fluctuations and flicker EN61000-3-3	Passed	
FCC Part 15 Class B Conducted and Radiated	Class B	

Safety Instructions

⚠ **DANGER** ⚡

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR FLASH

- Follow safe electical work practices. See local codes.
- This equipment must be installed and serviced qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off power supply equipment before working on or inside the equipment.
- Any covers that may be displaced during the installation must be reinstalled before powering the unit.
- Use a properly rated voltage sensing device to confirm power is off.

DO NOT DEPEND ON THIS PRODUCT TO DETERMINE THE PRESENCE OF VOLTAGE.

Failure to follow these instructions can result in death or serious injury.

NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- This installer must conform to all applicable codes.
- Please consult your local electrical codes for the installation process.

Section 2: Installation Procedures

> 💡 Engage a qualified electrician to connect to power in accordance with local electrical codes.

In the Box

When you receive your CircuiTrac Energy Mangement System you will find:

(1) CircuiTrac MCD (Monitor/Control Device)
(1) One RF antenna
(1) This Installation Guide

* Please note sensors are sold separately

Placement

- CircuiTrac MCD is installed between breaker panel and first receptacle
- CircuiTrac MCD fits within current 8-Trac spacing and sizes. Some moving or replacement of existing 8-Trac components may be necessary.

Figure 2.1: CircuiTrac ™ MCD configurations (Shown with Slide Mount Bracket)

Note: Only outlets downstream from output end are controlled

BE080145-XX Series
Universal Hardwire

2. Mounting detail

Depth of MCD

1 13/16"
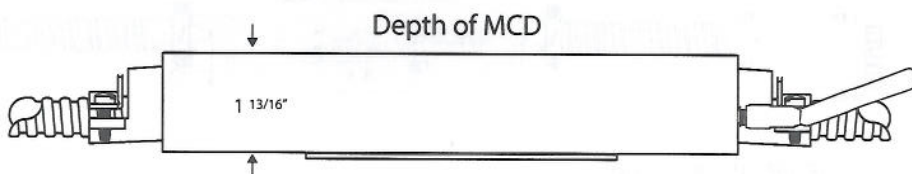
3. Circuit Keying

The keying and wiring configuration of the MCD must match the keying and wiring configuration of the 8-Trac component already in place

Figure 2.5: 3 + D — Black Connectors

			Xsede Xsite Tech Tile		Xsite Raceway	Interworks	Cetra 8 wire
BLACK	L1		BLACK	L1	BLACK	BLACK	BLACK
RED	L2		RED	L2	RED	RED	RED
BLUE	L3		BLUE	L3	BLUE	BLUE	BLUE
WHITE	N1		WHITE	N1	WHITE/BLACK	WHITE/BLACK	WHITE/BLACK
PINK	L4		PINK	L4	PINK	PINK	PINK
GRAY	N2		GRAY	N2	WHITE/RED	WHITE/RED	WHITE/RED
GREEN or BARE	G1		GREEN or BARE	G1	GREEN or BARE	GREEN or BARE	GREEN or BARE
GREEN/YELLOW	G2		GREEN/YELLOW	G2	GREEN/YELLLOW	GREEN/YELLLOW	GREEN/YELLLOW

2 + 2 — Black Connectors

BLACK	L1		BLACK	L1	BLACK	BLACK	BLACK
RED	L2		RED	L2	RED	RED	RED
WHITE	N1		WHITE	N1	WHITE/BLACK	WHITE/BLACK	WHITE/BLACK
BLUE	L3		BLUE	L3	BLUE	BLUE	BLUE
PINK	L4		PINK	L4	PINK	PINK	PINK
GRAY	N2		GRAY	N2	WHITE/RED	WHITE/RED	WHITE/RED
GREEN or BARE	G1		GREEN or BARE	G1	GREEN or BARE	GREEN or BARE	GREEN or BARE
GREEN/YELLOW	G2		GREEN/YELLOW	G2	GREEN/YELLOW	GREEN/YELLOW	GREEN/YELLOW

Figure 2.6: 3 - 3 - 2 — Rust Connectors

BLACK	L1		BLACK	L1	NOT SUPPORTED
WHITE	N1		WHITE	N1	
RED	L2		RED	L2	
GRAY	N2		GRAY	N2	
BLUE	L3		BLUE	L3	
WHITE/GRAY	N3		WHITE/GRAY	N3	
GREEN or BARE	G1		GREEN or BARE	G1	
GREEN/YELLOW	G2		GREEN/YELLOW	G2	

4. Control Power

IMPORTANT: CIRCUIT 1 MUST BE POWERED FOR MCD TO WORK

Section 3: Button Functions & Programming

SETUP Definitions:

Sensor Pair: This function pairs sensor(s)to a MCD.
Always On: Use this function to keep circuits in an Always on mode.
 This mode will override all other programming.
Run LED Definitions

Power: Blinking GREEN – Has sensors paired.
 Blinking RED - No sensors paired.
 After reset. (Once sensor(s) are paired and unpaired
 you will not see Red LED)
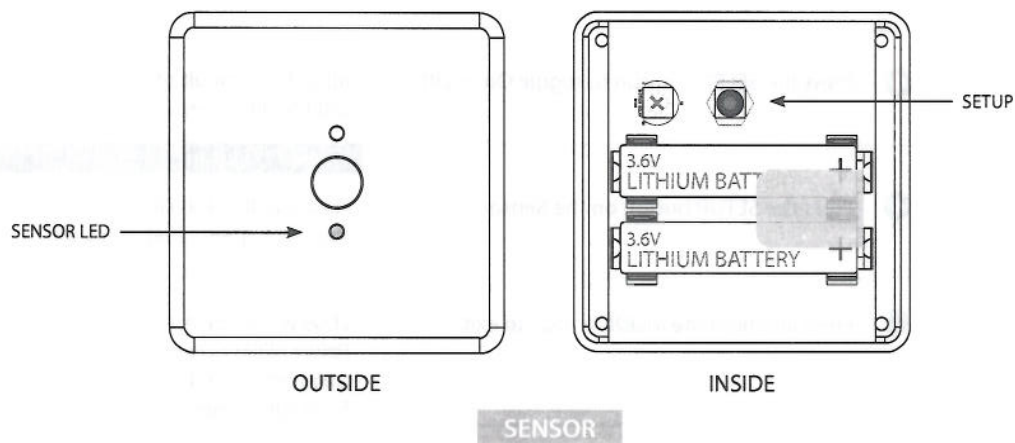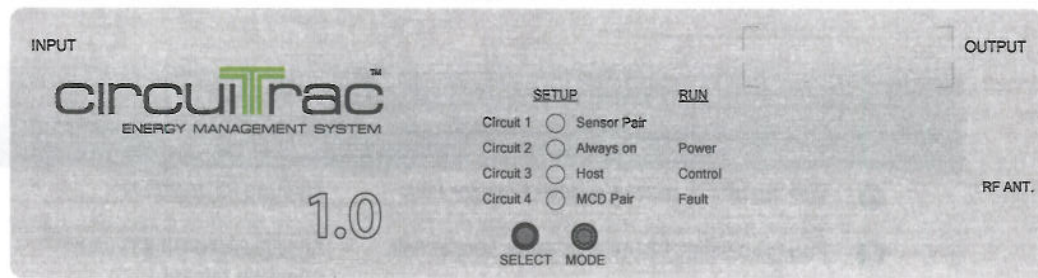Control: *(Intermently blink Green when sensor communicates with MCD)*
 Solid RED - Indicates that the sensors have been lost, low battery,
 or out of range.
Fault: Solid GREEN – No problems.
 Solid RED – Hardware fault.

*Once sensors have been paired and/or removed Power LED will always
blink GREEN to indicate the network is functioning.
*After 10 min of no communication or immediately after reset, before
any sensor paired, the Control LED will be solid red.

INPUT   OUTPUT

circuiTrac™
ENERGY MANAGEMENT SYSTEM

SETUP   RUN

Circuit 1 ○ Sensor Pair
Circuit 2 ○ Always on   Power
Circuit 3 ○ Host   Control
Circuit 4 ○ MCD Pair   Fault

1.0

SELECT   MODE

RF ANT.

SENSOR LED →

OUTSIDE

3.6V LITHIUM BATT
3.6V LITHIUM BATTERY

← SETUP

INSIDE

SENSOR

MCD First Boot Process:

* Note Out of the Box: All circuits will be ON.

1. *Power up MCD; Power LED will always flash RED at first power up.*

2. Hold down both MODE and SELECT buttons until all LEDs flash RED;

3. Open sensor. Remove plastic tab from batteries

4. Start with providing power to only one MCD and one sensor at one time.

5. Each MCD will pair with up to 16 Sensors.

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Sensor Pair - Add a sensor to control a circuit

Pushbutton Actions	MCD LED status
Use the MODE button to select Sensor Pair.	Blinking RED/GREEN
Press the SELECT button to enter Sensor Pair.	All LEDs solid GREEN with selection blinking
Use the MODE button to select a circuit to pair sensor.	Selection Blinking
Press the SELECT button to toggle On or Off.	RED LED is circuit off GREEN LED is circuit on
Press the SETUP button on the Sensor	Sensor LED status Flashing RED and GREEN , then fash green, then turns off
Press and hold the MODE button to exit.	LEDs will go back to the run functions. *Power blinks Green* *(solid green if master MCD)* *Fault light Green*

Note : MCD & Sensor may need up to 1 minute to sync.

Sensor Pair - Remove a sensor to control a circuit

Pushbutton Actions	MCD LED status
Use the MODE button to select Sensor Pair.	Blinking RED/GREEN
Press the SELECT button to enter Sensor Pair.	All LEDs solid GREEN with selection blinking
Use the MODE button to choose circuits	Selected circuits will flash
Use the SELECT button set all circuits to red	All LEDs must be RED
Click SETUP button on the sensor to delete from MCD. This can be repeated for other sensors.	Sensor LED status Sensor LED will flash RED/GREEN for 15 seconds. GREEN LED on sensor indicates success. RED LED indicates fault.
Press and hold the MODE button to exit.	LEDs will go back to the run functions. *Power blinks Green* *(solid green if master MCD)* *Fault light Green*

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Setup circuits to Always On

Pushbutton Actions	MCD LED status
◎ Use the MODE button to select Always On.	Blinking RED/GREEN
○ Press the SELECT button to enter Always On.	All LEDs should be Solid RED if this is the first time programming Always On.
○ Use the MODE button to select circuit to On or Off. Use the SELECT button to toggle On or Off.	Selection Blinking RED LED is Off GREEN LED is On
◉ Press and hold the MODE button to exit	All LEDs Off. After one min. LEDs will go back to the run functions.

Check the status of a circuit

Pushbutton Actions	MCD LED status
◉ Press and hold the SELECT button	Solid RED LED indicates circuit Off Solid GREEN LED indicates circuit On

Reset and clear MCD

Pushbutton Actions	MCD LED status
◉ ◉ Press and hold the SELECT and MODE button This will remove all paired sensors and delete Master or slave mode from MCD.	All Blinking RED/GREEN when complete

Section 4: Trouble Shooting

LEDS: (Troubleshooting)

Power LED	No light- No power.
	Solid green- Control power applied
Control LED	Blinks at one second intervals to indicate the monitor is logging data
Fault LED	Solid red- Indicates hardware fault.

Section 5: Sensor Specifications

TEMPERATURE	
Range	-20 °F to 140 °F (-30 °C to 60 °C)
Accuracy	1.5%

LIGHT LEVEL	
Range	0-160 ft-c
Accuracy	5%

MOTION	
Detection Zone	8m, 110 °

CONFIGURATION	
Beacon Rate	60 sec.
Battery Life	4.6 years 3.6 V, AA, Lithium

COMMUNICATIONS	
Topology	RF
RF Operating Frequency	2.4 GHz
Range	Indoor Up to 100 ft (30m)
Outdoor Line of sight	300 ft (90m)

MECHANICAL AND ENVIRONMENTAL

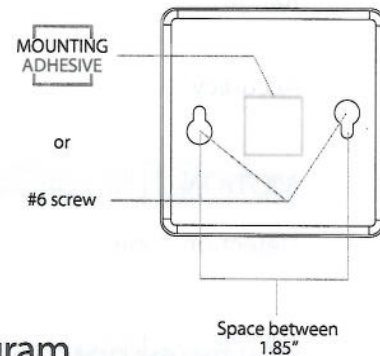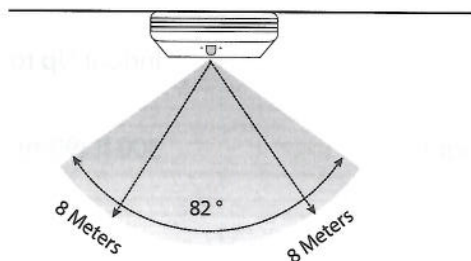|	
Size	4.25" square x 1.25" deep
Operating Temperature	-30 °C to 60 °C
Storage Temperature	-40 °C to 85 °C

Motion Delay Setting
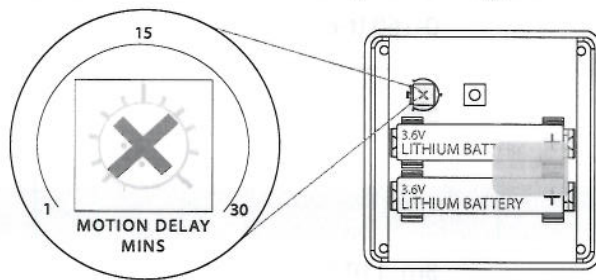
Mounting Options

Configuration Diagram

Motion Sensor Zone