



TECHNICAL DOCUMENTATION

V. 1.2

## MISSION

---

*Our mission is to reduce the stress on the environment and create value for our clients by providing them with economical energy conservation solutions. We help you manage your buildings tighter, greener, and more profitably.*

"If we do not change our direction, we are likely to end up where we are headed."

**- Chinese Proverb**

## EXECUTIVE SUMMARY

Energex Inc. is the designer and manufacturer of IR1836 in-room energy management and information solution. The system is based on passive infrared occupancy sensors located in each room and connected via low-voltage wiring to a small energy management unit which is installed in the wall cavity behind the room thermostat or inside the wiring chamber of the FCU / PTAC / Heat Pumps. When occupancy is detected by the sensor – HVAC and lighting functions are maintained according to the wishes of the occupant.

After an occupant has left the room for longer than 30 minutes, the energy management unit is activated and places the rooms systems in conservation mode. This results in energy savings of 25 – 45% while ensuring a quick recovery to the last known set point and a comfortable room atmosphere.

The energy management unit is custom programmed for each application and takes into account the following factors:

1. Geography
2. Room size
3. Insulation values
4. Window size
5. Floor in the building
6. Sun orientation
7. Corner / non corner room
8. Suite / room configuration



The installation process takes between 20 – 35 minutes per room and subroutine programming is performed by a certified technician. Careful considerations are involved in the design of the non-occupancy routines to ensure that the system remains passive and transparent to the occupants. During the process of the installation the room décor must not be compromised and the installers are trained to practice great care and attention to working around inhabitants.

Energex Inc. has been providing energy solutions for various industries since 1992. We take great pride in establishing several patents and “world’s firsts” such as our web-based in-room status display and our palm-based status delivery methods. We work closely with the nation’s leading utility corporations and consulting firms to continuously roll out and improve our solutions.

With installations and a proven record in 14 countries around the world, the system is capable of delivering dramatic savings with exacting standards of quality, and workmanship to satisfy even the most sensitive occupants. The system also uses standard building protocols and gear to ensure low deployment costs, high availability and consistent performance.

## TECHNICAL DATA

### FEATURES

Adjustable "switch on" timer  
Ultra-sensitive and reliable  
40 x 40 m (140 x 140 ft) standard coverage  
Over 1260 sq ft coverage  
Surface, corner, flush, or swivel bracket-mounting  
Unique visible pattern locator

### SPECIFICATIONS

#### OPTICAL

Standard Lens:

E-15 provides a 100° 38 x 38 m (125 x 125 ft) coverage pattern consisting of 58 beams in 3 detection layers

Interchangeable Lenses: E-15, E-34, E-18, E-52, E-51.

Refer to lens library for complete description

Adjustment:

Vertical +10° to -20° calibrated scale; Horizontal up to 30°

#### ELECTRICAL

Voltage: 12 - 28V DC / AC

Current Drain: 45 mA max (relay energized), 7 mA max quiescent current

Relay Output: Form C contacts (Normally Open, Normally Closed), rated 5A resistive/24V AC

Relay "ON" Timer: Adjustable

LED: Walk-test (switchable)

Testing Facility: Diagnostic test point

Detector: Dual-element low-noise pyroelectric sensor

Sensitivity Control: Adjustable,

#### GENERAL

Operating Temp.: -10°C to 50°C (14°F to 122°F)

Storage Temp.: -20° to 60°C (-4°F to 140°F)

RFI Protection: Greater than 20V/m to 1000 MHz

Dimensions: 120 x 70 x 48 mm (4-3/4 x 2-3/4 x 1-7/8 in)

Weight: 140 g (4.5 oz)

Color: White

- ✓ Eliminate wasted energy
- ✓ Reduce humidity and mildew
  - ✓ Reduce peak charge
  - ✓ Extend equipment life
- ✓ Real-time occupancy reporting
- ✓ Evacuate quicker during emergencies
  - ✓ Transparent to the guest
  - ✓ Reduce maintenance costs

Neo Sphere Model shown



#### INTERFACE WITH

120V, 208V, 240V, 277V, 347V system

Fan Coil Units

Most heat pumps

PTAC (Packaged terminal air conditioner)

2-pipe systems

4-pipe system

Electric baseboards

Gas fireplaces (Millivolt)

Hydronic or forced air systems

Most VAV systems

Any lighting control system

#### PATENTS

US, Canada 04 757 2836: 4,604,524 & Des. 286,383

US, Canada 04 757 2836: 4,604,524 & Des. 2861

## ENVIRONMENTAL

Operating Temperature: -10°C to 50°C (14°F to 122°F)

Storage Temperature: -20°C to 60°C (4°F to 140°F)

RFI Protection: Greater than 20 V/m to 1000 MHz

TMR™ - True Motion Recognition signal processing

Advanced system diagnostics

Trouble output

True temperature compensation

Selectable motion verification

Optional anti-masking

Optional programming by handheld device

EEPROM and Flash data input

Fuzzy logic signal processing

Wall, ceiling and corner mount

Sealed optical chamber protects the sensor  
from insects and air currents

Relay Output: Form C contacts (NO/NC), rated 1A resistive/24V AC

Relay Operation Timer: Adjustable, 3 seconds to 12 minutes

LED: Walk-test (switchable)

## BUILDING MANAGEMENT SYSTEMS INTERFACE

The Energex energy management unit can be incorporated into nearly every Building Management System including:

- BACnet
- Lonworks
- Tracer Summit
- Metasys
- 802.11b wireless networking for real time room status

## OPTIONAL ACCESSORIES

- BR-1: Universal swivel PIR mounting bracket
- BL-1: Plug-in visible beam locator light
- SRF-201: Flush mounting bracket

## OUR GUARANTEE

“Our confidence in our solution goes beyond words and is backed by our pledge to completely satisfy the needs of our clients. If our products do not meet the minimum expected energy reductions or cause guest dissatisfaction, we will do everything possible to rectify the problem or we are more than happy to reimburse our clients for their purchase.”

