

**DRAFT**

*Please Read Before Using This Equipment*

# ***The ExcelSys™ "Listener"***

*The wireless - internet enabled data collection system*

***ES100 TEMPERATURE SENSOR***

***ES200 PULSE TOTALIZER***

***ES300 REPEATER***

***ES500 LISTENER***

**Owners Manual**

## **Congratulations**

You are now the owner of the ExcelSyus™ "Listener", a wireless, internet enabled data collection system. With this system you have the flexibility of various modes of communication to receive the information back to the Excel Web Servers for publishing on your browser.

The complete ExcelSyus™ "Listener" utilizes a radio signals to communicate between wireless sensor's which transmit Celsius and Fahrenheit temperature readings. Also the wireless data totalizer which transmit total counts of items such as energy usage, operation cycles, and

Battery powered wireless sensor has a small green LED to notify of active data transmission. A small push button switch is barely visible for transmit activation in addition to the normal transmission schedules.

## **Battery**

All the devices contained in the complete ExcelSyus™ "Listener" products include battery operation. The transmitters require battery operation but the ExcelSyus™ "Listener" and repeater uses an optional battery for power loss requirements.

The normal battery life for the wireless sensor and wireless totalizer are greater than 18 months. The normal transmission of the data for both of these devices include an alert for low battery power and can be observed on the internet web site.

## **System**

The ExcelSyus™ "Listener" system includes several components - "Listener" software, "Listener" device, repeater, wireless sensors, and wireless data totalizer. The ExcelSyus™ "Listener" can be connected to several different devices including a standard PC running on a Microsoft Windows operating system, a modem connection, or an ExcelSyus™ "Monitor" system.

## **Operation**

The operation of the ExcelSyus™ "Listener" system is subdivided into the five system components:

### A. "Listener" Software

The "Listener" Software is designed to run using Microsoft's Internet Explorer version 5.0 or greater. Through Internet "SMTP" technology data is transferred to Excel's Internet Web Server. To ensure proper operation select from Microsoft Internet Explorer tools/Internet options/programs/e-mail and choose whichever email application the PC uses. The "Listener" software will use this conduit to transfer the data packets to Excel Energy Technologies.

Install the "Listener" software into a folder. The application is very small and no entries are made into your computer system registry. One the installation is made the PC is ready to activate the ExcelSyus™ "Listener" system.

### B. ExcelSyus™ "Listener"

The "Listener" has two communication ports. One uses RS-232 and the other is RS-485.

The PC attachment normally uses RS-232 however with a RS-485 card installed in your PC you can also use RS-485 and daisy chain the "Listeners." Through use of a null modem cable attach the ExcelSyus™ "Listener" to the PC Com port.

When connecting the Listener to the ExcelSyus Building Control Panel, use a null modem to the RS-485 ports on both devices.

### C. Repeater

The repeater is used to boost the signals coming from the wireless transmitters. They are simply installed in locations that allow the radio signals to go around dense metal areas or to increase the distance between the wireless transmitting devices and the "Listener." There is no setup required since the built-in intelligence recognizes Excel communication and simply rebroadcasts that data.

### D. Wireless Sensor

Operation of the wireless sensor is very simple and requires very little detail for proper operation. The main concern for the proper operation centers around getting the transmitted radio signals to the ExcelSyus™ "Listener." Items to avoid in order to improve the performance include staying away from dense wall structures or metal objects. Distance between the "Listener" and wireless sensors should be no more than 700 feet for good reception. If increased range is desired simply use the ExcelSyus™ "Repeater."

Other items to bear in mind while placing the wireless sensor are to avoid areas above hot surfaces such as cook tops, ovens, lights, sunlight heated objects, etc.

### E. Wireless Data Totalizer

The wireless data totalizer is similar to the operation of the wireless sensor except for the addition of the pulse input. The wireless data totalizer is constructed for sealed weather tight operation. For this reason the operation is activated by joining the two "enabling" control wires. The two input wires must be attached to the pulse initiation device that allows a low voltage signal to energize/de-energize.

Again, the main concern for the proper operation of the wireless data totalizer centers around getting the transmitted radio signals to the ExcelSyus™ "Listener." Items to avoid in order to improve the performance include staying away from dense wall structures and/or metal objects. Distance between the "Listener" and wireless data totalizer should be no more than 700 feet for good reception. If increased range is desired simply use the ExcelSyus™ "Repeater."

## Optimization

The Federal Communications Commission (FCC) places power limits upon devices that transmit as intentional radiators. This power limitation directly affects the distance or receiving range of the ExcelSyus™ "Listener" system.

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The broadcast range of the ExcelSyus™ "Listener" may be limited by a number of external factors listed above. Therefore, the following suggestions may be helpful in getting the optimal range.

1. Avoid metallic materials. Metallic materials affect a radio's range significantly. Thus the more metal objects located near the individual "Listener" devices the shorter the range.
2. Avoid using other devices that generate electrical interference. Electrical interference in the atmosphere will affect radio reception.
3. Replace weak batteries when the alert notification signal is seen on the Excel Energy web site. <http://www.excel-energy.com>

The user may also find a booklet prepared by the FCC helpful: "How to Identify and Resolve Radio-Television Interference Problems." This booklet is available from the United States Government Printing Office, Washington, D.C. 20402, Stock No. 004 000-00345-4.

## Radio Frequency Interference Statement

Note: This equipment has been tested and found to comply with the limits for an intentional radiator, pursuant to Part 15, Subpart C of the FCC Rules. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications.

The limits are designed to provide reasonable protection against such interference in a residential situation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna of the affected radio or television.
2. Increase the separation between the equipment and the affected receiver.
3. Connect the equipment and the affected receiver to power outlets on separate circuits.
4. Consult the dealer or an experienced radio/TV technician for help.

## Modifications

Changes or modifications not expressly approved by Excel Energy Technology, Ltd., could void the user's authority to operate the equipment.

## Specification

### Supply voltages

ExcelSyus™ "Listener"  
ExcelSyus™ "Repeater"  
Wireless Temperature Sensor  
Wireless Data Totalizer

### Frequency Range

Pre-emphasis  
Power Consumption  
Channel Strength  
Drop-Out Voltage

### Limited Warranty

Excel Energy Technologies, Ltd. warrants to the original consumer purchaser of the ExcelSyus™ "Listener" system that it will be free from defects in material and workmanship for a period of ninety (90) days from the date of purchase. Excel Energy Technology, Ltd. will repair or replace any defective parts without charge, provided that the item is returned with shipping charges prepaid, together with proof of the date-of-purchase, name of original purchaser, mailing address and a description of the defect, to:

Excel Energy Technologies, Ltd.

Tulsa, Oklahoma 74119

This warranty does not cover defects caused by damage in transit, abuse, accident, negligence, or repairs made by others.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For your protection cut out the warranty registration form printed on the packaging insert card and send to the above address.