InGrid Home Protection System
Signal Extender
Model SE430

Installation Instructions
June 2005
PRELIMINARY

PRODUCT DESCRIPTION

The Signal Extender is an InGrid Grid Controller that provides a communications link between an InGrid system and an alarm company central monitoring station. The Signal Extender receives radio signals from other Grid Controllers and from wireless Sensors, then uses the phone line to report security system events to the central monitoring station. One or more Signal Extender can be registered in a single InGrid system.

Figure 1 Signal Extender

The Signal Extender provides added security by separating the telephone interface from other Grid Controllers such as Keypads or Handsets. If a Keypad or Handset is damaged during a break-in or fire, the Signal Extender can still report to the central monitoring station. The Signal Extender is a supervised device that is regular communications with other Grid Controllers.

INSTALLATION

➢ **Installation Guidelines**

- The Signal Extender is designed to be mounted to an outlet that is preferably near a point where the telephone line enters the house. The Signal Extender will typically communicate at a range of up to 500 feet from other Grid Controllers.
- Do NOT use an outlet that is controlled by a switch.
- The chosen outlet should not have a metal outlet cover. This may reduce the communications range of the Signal Extender. If necessary, replace any metal outlet cover with another outlet cover made of a wood, plastic, glass, or other non-metallic material.
- Always mount the Signal Extender in the upright vertical position with the telephone connector facing down.
- The Signal Extender can be connected to a standard analog (loop-start) phone line, with or without digital subscriber line (DSL) service.

Note: The Signal Extender cannot be used on digital or PBX phone lines, which are designed only for digital type devices that operate anywhere from 5 volts DC and up. The Signal Extender uses an analog modem and does not have a digital converter, adapter, or interface to operate with such systems.

- When connecting the Signal Extender to a standard analog phone line, it is recommended that you install an RJ-31X jack ahead of all phones and other devices on the line for full line seizure. This allows the Signal Extender to take control of the phone line when an alarm occurs, even if the phone is in use or off-hook. It also provides customers with a quick disconnect in case the Signal Extender malfunctions, allowing them to use their phone.

- For UL Listed installations, mount the RJ-31X jack within 5 feet of the Signal Extender.

➢ **Install The Battery**

Note: To avoid risk of shock or fire, install only IG180 battery

Install the IG180 rechargeable battery pack into the Signal Extender and allow to charge for at least 15-20 hours before using with AC power.

1) Press down on the battery compartment cover (use the finger indention for a better grip) and slide the cover downward to remove.
2) Turn the battery pack so that the connector with the red and black wires is near the jack inside the battery compartment. Match the connector's polarity to the polarity of the jack in the battery compartment (the connector notches fit into the grooves of the jack only one way). Push the battery pack connector into the jack until it clicks into place.
3) Make sure you have a good connection by gently pulling on the battery wires. If the connection is secure, the battery connector will remain in place.
4) Place the battery case cover back on the handset and slide it upwards until it clicks into place.

➢ **Mounting**

Note: You must be free of static electricity before handling the Signal Extender. Touch a bare metal surface or wear a grounding strap to discharge yourself.

1) Mount the Signal Extender on an outlet only after the battery has been installed in the Signal Extender and the battery cover is closed.
2) Find the circuit breaker or fuse controlling the outlet to which the Signal Extender will be mounted and disconnect power to the outlet by turning the circuit breaker off or removing the fuse.
3) Remove the center screw attaching the outlet cover to the outlet. Do not remove the outlet cover.
4) Plug the Signal Extender into the lower socket of the outlet as shown in Figure x with the Signal Extender telephone connector facing downward.
5) The Signal Extender contains a sliding tab that protrudes above the Signal Extender. If necessary, slide the tab up or down until the hole in the tab is aligned with the center screw hole of the outlet cover.
6) Insert the outlet screw through both the tab and the center screw hole of the outlet cover as shown in Figure X, and tighten as necessary. The tab and the cover should be snug against the outlet, but not so tight that it causes flexing or stress on either the tab or the outlet cover.
7) Reconnect power to the outlet by turning the circuit breaker on or replacing the fuse.

Figure 2

Figure 3

➢ **Programming**

The Signal Extender must be registered into an InGrid Home Protection System in order to receive programming information from the other Grid Controllers in the system, the wireless Sensors that are being monitored, and the phone number and account number information required by the alarm company central monitoring station.

1) A compatible InGrid Keypad, Handset, Console, or Programmer must be used to place the InGrid system into registration mode according to the installation manual for one of those devices.
2) An Signal Extender which has not yet been registered into an InGrid system will periodically blink and beep.
3) The button on the Signal Extender must be pressed while the InGrid system is in registration mode.
4) The Keypad, Handset, Console, or Programmer which is being used for registration mode will shown the identity of the Signal Extender, and ask for confirmation.
5) Confirm the identity of the Signal Extender according to the installation manual; the Signal Extender will then automatically complete registration into the InGrid system and programming/configuration data will be downloaded into the Signal Extender.

➢ **Wiring a Phone Line to the Signal Extender**

Connect the Signal Extender ahead (or in front) of all other phones, answering machines, computers, or any other devices on the phone line. This allows the Signal Extender to take over (seize) the phone line, even if another device on the line is in use.

An RJ-31X jack should be installed when wiring for full line seizure. This lets the user quickly and easily disconnect the Signal Extender from the phone line in case the Signal Extender disables the phone line due to a malfunction.

Note: For UL Listed systems, the RJ-31X jack must be mounted within 5 feet of the Signal Extender.

1) Run a 4-conductor cable from the TELCO block to the RJ-31X (A in Figure 4).
2) Connect the 4-conductor cable wires to the RJ-31X (B in Figure 4).
3) Disconnect the Green and Red premises phone jack wires from the TELCO block and splice them to the 4-conductor cable Black and White (or Yellow) wires (C in Figure 4). Use weatherproof wire connectors for these splices.
4) Connect the 4-conductor cable Green and Red wires to the TELCO block TIP and Red to RING posts (D in Figure 4).
5) Insert the 8-conductor phone cord plug into the RJ-31X jack (E in Figure 4).
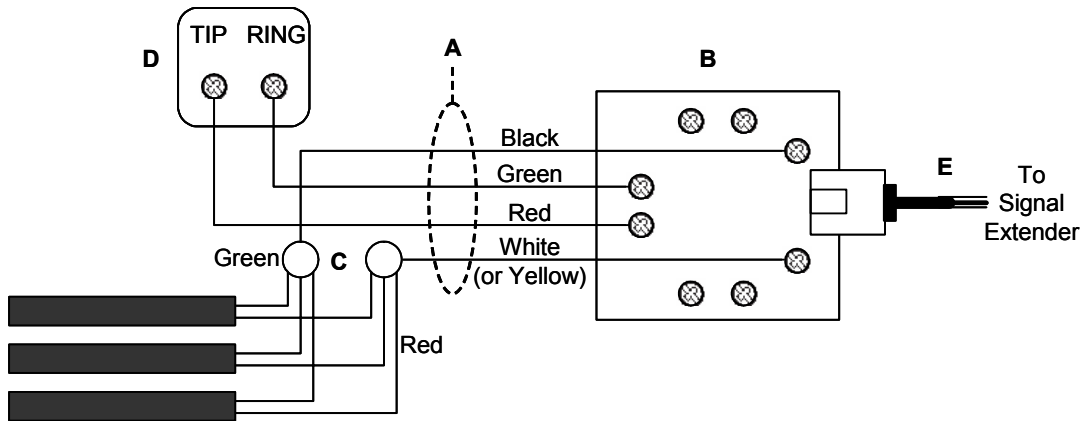
Figure 4 RJ31X Wiring

➢ Phone Test

After connecting the phone line to the Signal Extender, conduct a phone test to verify reports are made to the central monitoring station. The following steps describe the basic steps for conducting a phone test. Refer to the specific panel installation instructions for complete details.

Note: You must conduct a phone test whenever the Signal Extender battery is replaced.

1) Call the central monitoring station to inform them you are testing the system.
2) Make sure the InGrid system has the correct account number and central station receiver phone number programmed.
3) Enter the appropriate phone test command on the Keypad, Handset, Console, or Programmer used in the system.
4) Contact the central monitoring station when you are finished testing.

TROUBLESHOOTING

Note: Disconnect the phone line from the Signal Extender before servicing.

No Dial Tone

If there is no dial tone at on-site phones after wiring the RJ-31X jack, use the following to find the cause.

- Wait 2 minutes and try again. The Signal Extender may be busy trying to report to the central station.
- Check the DB-8 cord connections at the module and RJ-31X jack. Replace the cord if necessary.
- Disconnect the DB-8 cord from the RJ-31X jack. If the phone still doesn't work, the problem is in the RJ-31X jack wiring. Check the RJ-31X jack wiring and TELCO block wiring. Replace the RJ-31X jack if necessary.
- Perform a phone test after troubleshooting the phone line.

Constant Dial Tone

- If a constant dial tone prevents you from using the phone, there may be one or more polarity sensitive phones on the premises. Reverse the phone wires connected to the brown and gray wire terminals on the RJ-31X jack.

Trouble Condition

- The Signal Extender battery may be low. Check the battery, replace if necessary and conduct a phone test.

SPECIFICATIONS

Compatibility:......................... InGrid Grid Controllers, InGrid Wireless Sensors, Ademco Wireless Sensors
Wireless Range..500 feet open-air (nominal)
Backup Battery Source:...Use Only IG180 Battery
Storage Temperature: .... -30° F to 140° F (-34° C to 60° C)
Operating Temperature:...32° F to 120° F(0° C to 49° C)

Maximum Humidity: ....90% relative humidity, noncondensing
Dimensions: ....2.9" (7.4 cm) W, 4.7" (11.9 cm) H, 1.7" (4.3 cm) D
US Patents 6,888,459 and others pending

Note: The Signal Extender contains a backup battery. The battery must be replaced within 7 days when a low battery condition occurs to ensure that system events can be reported in the event of a power outage. Replace only with an InGrid IG180 battery. There is a risk of explosion if an incorrect type of battery is installed.

NOTICES

FCC Part 15 Information

Changes or modifications not expressly approved by InGrid, Inc. can void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the equipment or the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the affected equipment and the panel receiver to separate outlets, on different branch circuits.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Part 15 ID No. S9PSE430

ACTA Part 68

This equipment complies with Part 68 of the FCC Rules. Located on this equipment is a label that contains, among other information, the FCC registration number and the ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.
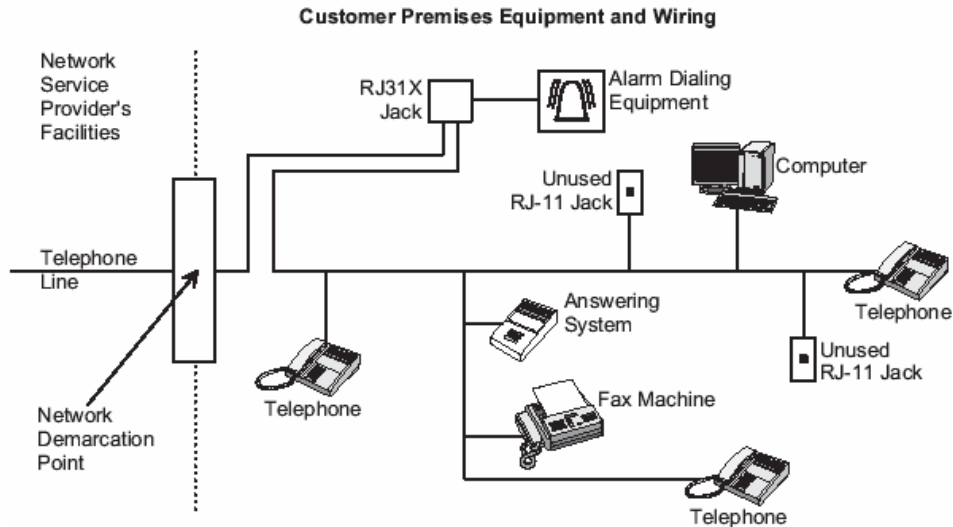
ACTA Registration No. S9PAL01BSE430

The REN is used to determine the maximum number of devices that may be connected to your telephone line. Excessive RENs on a telephone line may result in devices not ringing in response to an incoming call. In most areas, the sum of all device RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

This equipment is equipped with a USOC RJ31X connector. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack (RJ31X) which is part 68 compliant.

Alarm dialing equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system, computer modem, etc.) already has the telephone line in use. To do so, alarm dialing equipment must be connected to a properly installed RJ31X jack that is electrically in series and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the following diagram. If you have any questions concerning these instructions, consult your local telephone company or a qualified installer about installing an RJ31X jack and alarm dialing equipment for you.

Should this equipment cause harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will provide you with advance notice. Otherwise they will notify you as soon as possible. The telephone company will also advise you of changes in its facilities, equipment, operations or procedures which could affect the operation of your equipment, allowing you the opportunity to maintain uninterrupted service. You will also be advised of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. You will be given advance notice in order to maintain uninterrupted service.

Customer Premises Equipment and Wiring

Network Service Provider's Facilities

Telephone Line

Network Demarcation Point

RJ31X Jack

Alarm Dialing Equipment

Unused RJ-11 Jack

Computer

Answering System

Telephone

Telephone

Unused RJ-11 Jack

Fax Machine

Telephone

Telephone

Should you experience trouble with the telephone lines, disconnect the equipment from the line to determine the source of the trouble. If it is determined that the equipment is malfunctioning, discontinue its use until the malfunction has been corrected. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telephone company cause to request the user to disconnect the equipment.

This equipment must not be used on party lines or coin-operated phone lines.

Declaration of Conformity (DoC)

InGrid, Inc. declares that the model no. SE430 is in conformity with Part 15 of the FCC Rules. Operation of this product is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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INGRID *Signal Extender*