

Planning an Omni Installation

Rev 1.2

Controller

- The controller should be mounted in a safe weatherproof area. The most common areas include a closet wall or under an interior staircase. This enclosure can be surface mounted or recessed into the wall between studs (new construction). While choosing a location consider a central location to reduce the length of wire runs.
- A duplex 110V outlet, preferably on it's own circuit, is required within 5 ft. of the controller for connecting its 24VAC 40VA (not included) power transformer and the automation 2-way interface. A 14 gauge wire should be run from the homes main grounding rod to the controller's "earth grnd" terminal. Transient protection will not work if the controller is not properly grounded. The controller will require a 12VDC 7 amp hour back-up battery. For UL Listed installations and locations subject to long power outages it is recommended to use two 12V 7 amp hour batteries wired in parallel.

Security Zones

- Each security zone will require a single or two pairs of 22 gauge conductors home run from the security sensor to the controller. If the security sensor is powered use 2 pairs. If the sensor is a simple door/window contact use a single pair. Be certain to number, name, & label each wire on both the sensor and panel side of the wire. During new construction the pre-wire occurs during the framing stage. It is strongly recommended to test all wire runs for continuity before the sheet rock stage. Always use nail plates to prevent short circuits cause by sheet rock nails.
- Most security companies use one of the following philosophies during a prewire. Choose one which is right for your company:
 - Contact every entry/exit door. Use 2 conductor 22 gauge wires. A recessed contact and magnet will be installed during final trim. **Rating:** A must!
 - Contact every 1st floor window. Use 2 conductor 22 gauge wires. A recessed contact and magnet will be installed during final trim. **Rating:** Recommended. There are different philosophies of security. Some companies solely rely on glass break detectors. Contact and glass break detectors perform different functions and look for different methods of intrusion. Contacted windows are very useful for HVAC control when writing automation routines.
 - Contact every 2nd floor window. Use 2 conductor 22 gauge wires. A recessed contact and magnet will be installed during final trim. **Rating:** Optional. All windows with low roof access to the 2nd floor should be protected in the same manner as 1st floor windows. All 2nd floor windows must be contacted if the automation routine 'open a window turn of the HVAC' routine is going to be used.
 - Use glass break detectors to monitor glass entry points to the home. **Rating:** Recommended for picture windows and other highly vulnerable access points. Optional when a window is contacted. All 1st floor and accessible 2nd floor windows should have a contact and/or glass break detector.
- Motion detectors provide second level protection. The main 1st floor hallway, and 2nd floor hallway should be protected. If a house has a 'day' basement the stairs to the 1st floor should be protected. Use 4 conductor 22 gauge wire. **Rating:** Essential providing there are no pets in the home. When pets are present experiment with 'pet immune' detectors to protect an area appropriately. Note locations where a motion detector may be used for lighting control during automated routines.
- Smoke detectors require a 4 conductor 'fire wire' and should be installed according to local building/ fire codes. Only 4 wire 12VDC smoke detectors can be directly connected to the controller. In installations using AC smoke detectors check with the electrical contractor to see if the detectors being used offer a low voltage interface kit. If a kit is available check with an inspector before installing the device. Most municipalities allow either AC and/or DC smoke detectors to provide fire protection for the home. Always stay current with local building and fire codes. When installing 4 conductor smoke detectors always install a fire power supervision relay. This diagram can be found in the HAI Installation Manual.

- Know your windows/doors! Some windows are sealed and can be ruined when drilling for a contact. If in doubt consult with the window installation company.
- Always run any wires associated with electronics at a 90° angle of any Romex cable used in the home. This wiring method will reduce the likelihood of electrical noise interfering with the system communication.

Consoles

- Most installations have at least 2 consoles. The 1st console is mounted near the common entry point to the home (by the garage). The second console is often installed in the master bedroom. Historically consoles required standard 4 conductor 22 gauge wire. Check local codes since many municipalities are beginning to require 'fire wire.' Mounting height should be approximately 58" from the floor.

Interior and / or Exterior Sounders

- Locate Sirens or sounders where they will not be tampered with. Interior sounders should be able to alert any occupant, at any time, in the event of an alarm. Most sirens require a 2 conductor wire.
- Note the combination of the exterior and interior sounders can not exceed a combined current draw of 1 amp. The most common solution is to use a Piezo sounder for interior and an exterior sounder which draws less than ¾ amp. If a higher current draw is necessary consult the HAI Applications Directory for a wiring diagram.

Temperature Zones

- Run 22 gauge, 4 conductor wire from the controller to each thermostat (homerun or daisy chain). Only 3 conductors will be used. During installation be certain to follow the wiring diagram in the thermostat installation manual. Note the red and black conductors are tied together at the thermostat.
- Run 22 gauge, 4 conductor wire from the controller panel to the attic for an outdoor temperature sensor. The most common installation location in the eaves of the roof. Use zone 15 for the outdoor temperature sensor.
- During final trim when the thermostat is hung be certain to address the thermostats correctly. Instructions can be found in the thermostat installation manual. While setting the address it is a good idea to set option 3 to a value of 5. Setting this option turns the schedule function in the thermostat to off. This provides the HAI system total control over temperature settings.

Telephone Connection

- Run 4 conductor telephone wire from the main Telco (Telephone Co) junction box to the controller. The 4 wires are connected to the supplied RJ-31x jack. Consult the RJ-31x wiring diagram for proper installation. The purpose of the RJ-31x jack is to provide line seizure for the controller. This wiring method places the control panel in 1st position on the phone line. This serves two functions. In emergency situations the control panel will always have the ability to terminate an existing call (or phone off hook) and access dial tone. Secondly, all phones within the house are connected to the control panel allowing in house phone access and PC Access.

Home Control Modules (powerline carrier switches etc.)

- Determine the type of switch needed for each location:
 - Dimmer (Incandescent) or Switch (Resistive)
 - If Dimmer – Determine the necessary wattage rating
 - Lamp Modules: an inexpensive and flexible option for lamps
 - Appliance Module: an inexpensive and flexible option for resistive loads
 - Receptacles (controlled outlet)
- All installations using power line carrier equipment must include a phase coupling device
 - Homes less than 2,000 sq/ft may use a signal bridge
 - Homes greater than 2,000 sq/ft it is recommended to use an amplifier/repeater in lieu of a signal bridge.
 - In installations with multiple fuse boxes it may be necessary to use more than 1 amplifier repeater. Typically if the breaker boxes are side by side only 1 repeater is necessary. If the service is split and breaker boxes are on opposite sides on the home, 2 amplifier repeaters may be needed.