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INSTALLATION HELP

1. Do not install any of the wireless sensors before mounting and powering the control and receiver. Retain sensors in the boiler room for an initial system test.
2. Determine where the control is to be mounted. The receiver is to be mounted within 5 ft. of the control. The 6 ft. gray flat cable must reach the black RJ-12 square telephone style receptacle located towards the top of the control terminal wiring board. The receiver is powered by a 120 Vac outlet mounted transformer. This may require installing an outlet within 3 ft. of the receiver. Choose a receiver location where the antenna is not blocked by masonry or steel objects and allow 8 in. clearance above, below and on either side for the antennas, the RS-232 digital signal output connector, and side access to the tiny Phillips cover screws.
3. Mount the control on a wood backing. Avoid mounting the control directly onto brick or concrete. Do not mount the control directly to a boiler jacket.
4. Mount the 6 in. x 8 in. receiver plywood backing provided. Open the receiver cover by loosening the #3 Phillips screws on each side. There are spare #3 screws in the plastic bag. Mount the receiver using the two chassis holes provided. Be careful not to damage the power connector wires while mounting and re-attaching the cover. Attach the two receiver antennas. Tilt antennas at a 45 deg. angle away from the wall. The LED's inside the receiver flash when signals are received, *useful for troubleshooting*.
5. Mount a 24Vac 20 V A transformer for the control panel (not provided) and connect to control. Power the RF receiver and connect the gray flat cable from the RF receiver to the control panel via the cable provided. Tighten the RS232 slotted thumb screws.
6. Connect the outdoor sensor as shown in the owners manual. Connect conduit ground to post next to terminals. Grounding reduces electrical interference, especially from lighting and spark ignition modules.

SYSTEM TEST

1. Remove sensor mounting brackets by prying the from the top (nearest emblem) portion of the mounting bracket with your thumb nail. Next remove sensor covers by pressing inward where the front cover is notched and the back half of the sensor housing is exposed.
2. Find sensor #1 (see label on the back of the sensor). The 5 in. spring wire is the antenna, do not bend or short to any components. The tiny brown dot at the top is the thermistor. The miniature button switch to the right of the thermistor is the reset switch. Press the reset switch to force a transmission. Verify that the corresponding sensor fault light on the control panel has gone out. Test all remaining sensors.

Sensors transmit twenty-five times on various frequencies whenever there is a 1 deg. temperature change or the internal reset switch is pressed. To conserve battery power and "announce" their presence, sensors transmit at least every 15 minutes but

not on multiple frequencies. It is normal to occasionally miss a transmission during periods when room temperatures have changed less than 1 deg. because the signal has been transmitted only once.

3. After installing the sensors at their remote locations, turn control power switch off then back on. After 15 minutes all the sensor should have reported. If you are missing a report, go to that location and press the reset switch. Perhaps the signal was sent only once and not twenty-five times.

FIELD THEORY AND REPEATERS

Repeaters transmit 16 db more power than a battery powered sensor. This allows penetration through five concrete or fire brick floors as opposed to only three. Repeaters can also penetrate twice as many exterior brick walls making it more likely that signals can exit and re-enter across "U" shaped courts a lot better than a sensor itself is able.

900 MHZ radio signals tend to reflect their way through large open rooms, open hallways and elevator shafts. A fair signal in a hallway may not mean that there will be sufficient signal strength within an apartment. This is especially true within hallways of three story walk-ups that have two to four courses of brick between the hallway and an apartment.

CHOOSING A REPEATER LOCATION

1. Temporarily attach a 12 Vdc battery to the repeater. Turn the control power OFF then ON to clear pre-existing control data. Carry a single sensor around the building and determine its maximum transmit distance. The sensor "test" switch will create an immediate transmission which will appear at the control.
2. Carry the single sensor and the battery powered repeater beyond the sensor maximum transmit distance. Set down the repeater, press the sensor "test" switch and repeat this until you have found the maximum transmit distance for the repeater with the sensor close by.
3. The overall maximum transmit distance from the sensor to the control will be equal to the maximum transmit distance from the control to the repeater plus the maximum transmit distance between the repeater and the sensor.

MULTIPLE REPEATER LOCATIONS

Repeaters automatically re-transmit data from a sensor or even another repeater. To minimize the number of repeaters necessary for a job, attach permanent power to the first repeater. Beginning from the location of the first repeater and perform steps 1, 2, and 3 again while carrying one sensor and a second repeater powered by a 12 V dc battery.

SIGNAL STRENGTH MEASUREMENTS

Test equipment is available to read RF signal path loss in dbm. Using this device, an installer can determine whether the signal is sufficient. Another method is to use the heat control's RUN menu which can display the number of successful transmissions relative to a running count. The running count can be a number between 1 and 15 and is displayed along side the successful transmission count. This technique is a very reliable method of evaluating signal path loss without the use of the RF signal measurement tool.