

## Remote Sensors

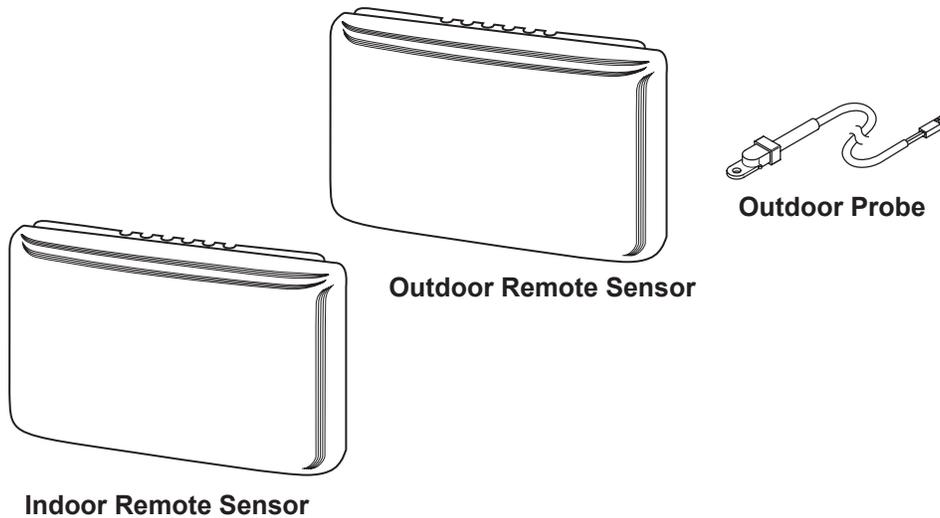
Indoor (Part No. 910129095)

Outdoor (Part No. 910129096)

Used With:

Programmable Touch-Screen Thermostat (Part No. 910121750)

SmartSource™ Units - Models GS & GT



Indoor Remote Sensor

Outdoor Remote Sensor

Outdoor Probe

### IMPORTANT!

Operator, save these instructions for future use!

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## Safety

### WARNING

Wiring connections must be made in accordance with all applicable electrical codes. Failure to read and follow all instructions carefully before installing or operating this control could cause personal injury and/or property damage.

### CAUTION

To prevent electrical shock, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.

### NOTICE

If in doubt about whether your wiring is millivolt, line, or low voltage, have it inspected by a qualified heating and air conditioning contractor or electrician.

Do not exceed the specification ratings.

All wiring must conform to local and national electrical codes and ordinances.

This control is a precision instrument, and should be handled carefully. Rough handling or distorting components could cause the control to malfunction.

The remote sensors cannot be used with systems where power interruptions are part of normal system operation.

## Specifications

**Note:** Remote sensor 910129095 is approved for indoor use only.

**Temperature range:** 40° to 99°F

**Operating humidity range:** 0 to 90% RH (non-condensing).

20-gauge, three-conductor shielded cable must be used for all remote sensor wiring.

**Note:** Remote sensor 910129096 is approved for outdoor use only.

**Temperature range of outdoor probe:** -40° to 140°F

20-gauge, three-conductor shielded cable must be used for all remote sensor wiring.

## Installation

### Indoor Sensor

#### Select Sensor Location

Proper location insures that the remote sensor will provide a comfortable home or building temperature. Observe the following general rules when selecting a location:

1. The remote sensor can be located a maximum of 300 feet from the thermostat.
2. Locate sensor about 5 ft. above the room floor level.
3. Install sensor on a partitioning wall, not on an outside wall.
4. Never expose sensor to direct light from lamps, sun, fireplaces or any temperature radiating equipment.

5. Avoid locations close to windows, adjoining outside walls, or doors that lead outside.
6. Avoid locations close to air registers or in the direct path of air from them.
7. Make sure there are no pipes or duct work in that part of the wall chosen for the sensor location.
8. Never locate sensor in a room that is normally warmer or cooler than the other areas being conditioned.
9. Avoid locations with poor air circulation, such as behind doors or in alcoves.
10. In the home, the living or dining room is normally a good location, provided there is no cooking range or refrigerator on opposite side of wall.

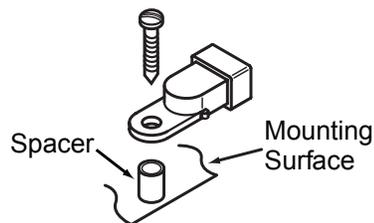
### Outdoor Sensor

#### Select Sensor Location

Proper location insures that the remote sensor will provide a correct outdoor temperature reading. Observe the following general rules when selecting a location:

1. The interior mounting base can be located a maximum of 300 feet from the thermostat.
2. Install the interior mounting base within 12 ft. of the intended outdoor probe location.
3. Never install the outdoor probe where it will be exposed to direct light from lamps, sun, fireplaces or any temperature radiating equipment.
4. Make sure there are no pipes or ductwork in the wall chosen for the base location.
5. Outdoor temperature measurement requires installing the probe outdoors. Good probe locations would be under a bay window or overhang, out of direct sunlight. Direct sun exposure will affect sensed temperature. Install probe with spacer to obtain a more accurate temperature.

**Figure 1: Outdoor probe mounting detail**



6. Although connected to the probe wire for outdoor temperature sensing, the interior mounting base must be placed **indoors**. Therefore, the interior mounting base must be installed near the perimeter of the building, so that the probe wire can be run through to the outside of the structure and placed in the selected (shaded) location. The outdoor probe wire is 12 feet long (**and should not be cut or spliced**), so plan the placement of both the probe and interior mounting base accordingly. Any excess wire may be coiled or bundled. The probe should be connected to E2 as shown in [Figure 3](#).

# Wiring

## ⚠ CAUTION

Do not allow the 3-conductor wire to be pinched between the sensor and the wall.

Check wire connections before applying power. Improper connections will lead to permanent damage to the sensor.

20-Gauge Shielded cable must be used. Cable shield must be connected to “-” or S3 on the THERMOSTAT ONLY.

**Table 7: Connection cross-reference**

Old Terminal (Thermostat or Remote)	New Terminal (Thermostat or Remote)
S1	+
S2	S
S3	-

**Table 8: Indoor sensor**

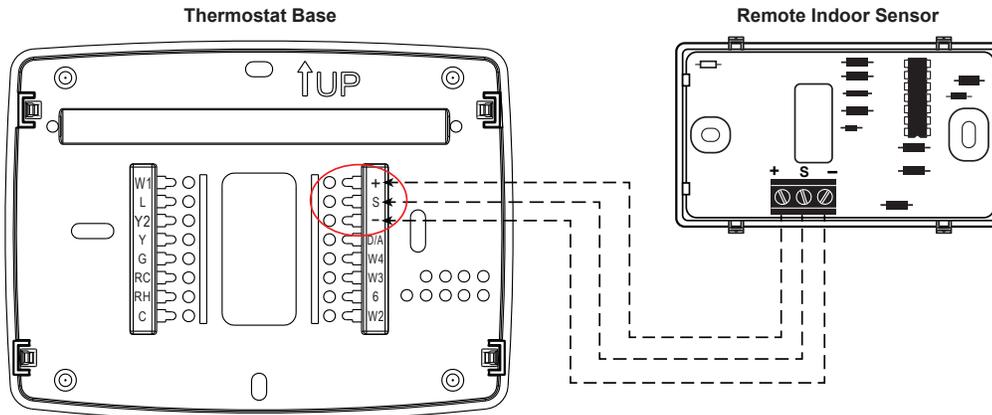
Model Number	Color	Dimensions	Application
910129095	Classic White	2-1/8" × 3-1/2" × 3/4"	Compatible with Programmable Touch Screen Thermostat (Part No. 910121750) with indoor remote sense

**Table 9: Outdoor sensor**

Model Number	Color	Dimensions	Application
910129096	Classic White	2-1/8" × 3-1/2" × 3/4" with 12' sensor lead	Compatible with Programmable Touch Screen Thermostat (Part No. 910121750) with outdoor remote sense

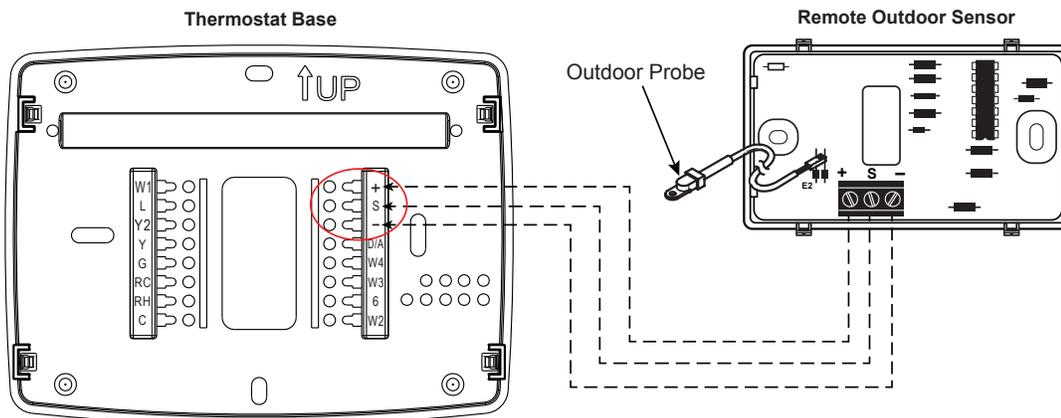
## Indoor Remote Sensor Wiring Diagram

**Figure 2: Indoor Remote Sensor (910129095) wiring to Programmable Touch Screen Thermostat (910121750)**



## Outdoor Remote Sensor Wiring Diagram

**Figure 3: Outdoor Remote Sensor (910129096) wiring to Programmable Touch Screen Thermostat (910121750)**



## Configuration

When installing a remote sensor you must enable the remote sensor option. See "Installer/Configuration Menu" in IM 1178.

## Troubleshooting Chart

To function correctly and read temperature accurately, the thermostat (when set up for a remote as outlined above) must have constant 24-volt power. If the thermostat temperature is steadily dropping, reading low, or reads 08° when a remote sensor is installed, it can be traced to one of the three following conditions.

Condition	Test	Comments
1. Loss of 24-volt power.	On models with batteries, remove the batteries and re-install thermostat. If the display is blank, check heating and cooling system to determine why 24-volt power is absent.	For the sensor to read correctly, the 24-volt system power must be present. Some systems may require an isolation relay to provide constant power to the thermostat. Limit or safety devices in the equipment can also cause a power interruption
2. A broken wire on +, SA, - from the thermostat to the remote.	Disconnect sensor wires at thermostat. Attach a short piece (2') of three-wire shielded cable to (+, SA -) on the subbase. Bring the remote sensor to the thermostat, location and attach (+, S, -) respectively. Reattach thermostat. If the temperature begins to climb (slowly), it is reading correctly. If it reads correctly with the 2' length but improperly when attached to the wire run, it indicates a fault in the wire run.	Repair or replace the 3 wire shielded cable. Be sure the remote wire run is not parallel to line voltage wires that carry heavy inductive loads, or across fluorescent light ballasts that may cause an inductance to be transmitted to the thermostat.
3. A shorted or damaged remote sensor.	Because it is an electronic sensor, there are no Ohm values to test. If correct conditions as listed in 1 & 2 above and the temperature stays at or near 08°, it indicates a shorted or damaged remote sensor.	Replace remote sensor.

**Note:** *Digital thermostats and remote sensors acclimate very slowly to temperature change. It may take an hour or more for the temperature to acclimate to the room temperature from a low temperature reading as outlined above. To expedite the room temperature display use the reset instructions listed in the installation instructions for the thermostat model you are working with. When reset, the thermostat will default to a room temperature of 70° and begin sensing room temperature. Be sure to reconfigure the installer menu for a remote sensor because the reset function may cancel remote sensing.*

