INSTALLATION AND MAINTENANCE INSTRUCTIONS

RR2 Polarity Reversal Relay Module

Specifications
- Operating Voltage Range: 8.5 to 35 VDC
- Maximum Operating Current: 25mA
- Relay Contacts: 2A at 35 VDC
- Operating Temperature Range: 0° to 55° C (32° to 131° F)
- Operating Humidity Range: 5% to 95% non-condensing
- Dimensions: 2½" x 2½" x 1"
- Wire connections: 18 AWG stranded, tinned, 16" long

General Description
The RR2 polarity reversing relay module is intended for use with 2-wire and 4-wire detectors with built-in sounder, such as System Sensor 2100AT, 2112/24AT, 2112/24ATR and 2112/24AITR, 501BH, and other compatible models. It is designed to allow all the detectors in the same loop to sound when one of the detectors goes into alarm.

The RR2 may be used with an alarm zone that provides coded output for fire and continuous output for burglary. By default the RR2 will only trigger when the alarm output is coded. In this manner, smoke detectors will only sound from the result of a fire, and not from a burglary alarm. When the RR2 is used in this mode, the smoke detectors must provide for coded alarm signals if required by the specification.

The RR2 can also be set to only trigger on continuous alarm zone signals. When used in this mode, it will not trigger from a coded fire alarm signal.

NOTICE: This manual shall be left with the owner/user of this equipment.

NOTE: If your panel configuration does not match any of the provided wiring diagrams, please contact System Sensor technical services at 1-800-SENSOR2 for assistance.

WARNING
When calculating total current draw of the control panel, remember to add current consumption (25mA) for the power reversal relay module (RR2).

IMPORTANT: If the fire alarm output signal is coded, set the switch on the RR2 to “OFF”. If the fire alarm output signal is continuous, set the switch to “ON”.

Wiring
IMPORTANT: All polarities must be observed!
1. Connect the RR2 module trigger wire to the fire alarm output terminals.
   A. Alarm/Bell output: (Figures 1 and 2)
      Connect the purple wire to the Alarm or Bell output.
   B. Alarm relay, normally open contact: (Figures 3 and 4)
      1. Connect one end of the alarm relay contact output to positive auxiliary or detector power fire alarm output.
      2. Connect the purple wire to the other end of the alarm relay contact output.
2. Connect the red and black wires to the panel auxiliary or detector power (red to positive, black to negative).
3. 2-wire models
   Connect the yellow and orange wires to the panel initiating circuit (yellow to positive, orange to negative).
4. 4-wire models
   Connect the yellow and orange wires to the panel detector power circuit (yellow to positive, orange to negative).
4. 2-wire models
   Connect the brown and white wires to the smoke detector initiating circuit (brown to positive, white to negative).
4. 4-wire models
   Connect the brown and white wires to the smoke detector power circuit (brown to positive, white to negative).

Installation
Choose a mounting location in the control panel within reach of the provided wire leads. Use a water/isopropyl alcohol mixture (50/50) to clean the mounting surface. Allow surface to dry and remove paper backing from the Velcro and catch. Stick the Velcro in the panel and the catch on the back of the module, then mount the module inside the control panel. Route terminals to the appropriate terminals as noted below.
NOTE: If your panel configuration does not match any of the following wiring diagrams, please contact System Sensor technical services at 1-800-SENSOR2 for assistance. Please refer to Figures 5 and 6 for Ademco Vista panels and Figure 7 for DSC Power 832 panels.

**Figure 1. 2-Wire system triggered from IAC/bell circuit:**

![Diagram of 2-Wire system triggered from IAC/bell circuit]

NOTE: If optional Style A (Class B) wiring is used, a second RR2 module must be added to enable concurrent loop polarity reversal.

**Figure 2. 4-Wire system triggered from IAC/bell circuit:**

![Diagram of 4-Wire system triggered from IAC/bell circuit]

**Figure 3. 2-Wire system triggered from alarm relay contact:**

![Diagram of 2-Wire system triggered from alarm relay contact]

NOTE: If optional Style A (Class B) wiring is used, a second RR2 module must be added to enable concurrent loop polarity reversal.
Connection Diagrams with Ademco Vista Panels
The connection diagrams enclosed show how to connect the 2100AT model smoke detector to the Vista panels using the System Sensor power reversal relay module (RR2). Please make sure that the smoke detectors are connected properly to the zones specified in the wiring diagrams for proper operation of the smoke detectors.

Figure 5. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from bell/alarm circuit:

Programming information:
• The supervisory feature for the bell circuit must be turned off. See applicable control manual for procedure.
RR2 Configuration:
• Set switch on RR2 to “OFF”.

Figure 6. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from auxiliary relay:

Programming information:
• Program Auxiliary relay to activate on alarms
• Assign Auxiliary relay as an output for zones programmed for fire alarm response only (Types 9, 16, or 17)
RR2 Configuration:
• Set switch on RR2 to “ON”.

Connection Diagrams with Ademco Vista Panels
The connection diagrams enclosed show how to connect the 2100AT model smoke detector to the Vista panels using the System Sensor power reversal relay module (RR2). Please make sure that the smoke detectors are connected properly to the zones specified in the wiring diagrams for proper operation of the smoke detectors.

Figure 5. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from bell/alarm circuit:

Programming information:
• The supervisory feature for the bell circuit must be turned off. See applicable control manual for procedure.
RR2 Configuration:
• Set switch on RR2 to “OFF”.

Figure 6. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from auxiliary relay:

Programming information:
• Program Auxiliary relay to activate on alarms
• Assign Auxiliary relay as an output for zones programmed for fire alarm response only (Types 9, 16, or 17)
RR2 Configuration:
• Set switch on RR2 to “ON”.

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Programming information:
• The supervisory feature for the bell circuit must be turned off. See applicable control manual for procedure.
RR2 Configuration:
• Set switch on RR2 to “OFF”.

Figure 6. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from auxiliary relay:

Programming information:
• Program Auxiliary relay to activate on alarms
• Assign Auxiliary relay as an output for zones programmed for fire alarm response only (Types 9, 16, or 17)
RR2 Configuration:
• Set switch on RR2 to “ON”.

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Programming information:
• The supervisory feature for the bell circuit must be turned off. See applicable control manual for procedure.
RR2 Configuration:
• Set switch on RR2 to “OFF”.

Figure 6. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from auxiliary relay:

Programming information:
• Program Auxiliary relay to activate on alarms
• Assign Auxiliary relay as an output for zones programmed for fire alarm response only (Types 9, 16, or 17)
RR2 Configuration:
• Set switch on RR2 to “ON”.

Connection Diagrams with Ademco Vista Panels
The connection diagrams enclosed show how to connect the 2100AT model smoke detector to the Vista panels using the System Sensor power reversal relay module (RR2). Please make sure that the smoke detectors are connected properly to the zones specified in the wiring diagrams for proper operation of the smoke detectors.

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Programming information:
• The supervisory feature for the bell circuit must be turned off. See applicable control manual for procedure.
RR2 Configuration:
• Set switch on RR2 to “OFF”.

Figure 6. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from auxiliary relay:

Programming information:
• Program Auxiliary relay to activate on alarms
• Assign Auxiliary relay as an output for zones programmed for fire alarm response only (Types 9, 16, or 17)
RR2 Configuration:
• Set switch on RR2 to “ON”.

Connection Diagrams with Ademco Vista Panels
The connection diagrams enclosed show how to connect the 2100AT model smoke detector to the Vista panels using the System Sensor power reversal relay module (RR2). Please make sure that the smoke detectors are connected properly to the zones specified in the wiring diagrams for proper operation of the smoke detectors.

Figure 5. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from bell/alarm circuit:

Programming information:
• The supervisory feature for the bell circuit must be turned off. See applicable control manual for procedure.
RR2 Configuration:
• Set switch on RR2 to “OFF”.

Figure 6. Connecting 2100AT smoke detectors to Ademco controls using RR2 module triggered from auxiliary relay:

Programming information:
• Program Auxiliary relay to activate on alarms
• Assign Auxiliary relay as an output for zones programmed for fire alarm response only (Types 9, 16, or 17)
RR2 Configuration:
• Set switch on RR2 to “ON”.
System Sensor warrants its enclosed relay module to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this smoke detector. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company’s obligation of this Warranty shall be limited to the repair or replacement of any part of the smoke detector which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor’s toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Repair Department, RA #__________, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company’s negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Connection diagrams with DSC Power 832 Panels

Figure 7. Connecting 2112/24AT, 2112/24ATR, and 2112/24AITR smoke detectors to DSC Power 832 controls using RR2 module with PGM output:

**Testing**

Before testing, notify the proper authorities that the system is undergoing maintenance and will temporarily be out of service.

Test in accordance with NFPA 72 test methods, inspections, and testing frequency.

1. Confirm that all smoke detectors connected to the RR2 module(s) contain a sounder and the sounders are activated upon power reversal.

2. Initiate an alarm with one of the smoke detectors connected to the RR2 module using any approved test method. In the alarm state, all the detectors connected to the RR2 module must be sounding their sounders.

3. Reset the system from the control panel. All smoke detector sounders should be silent.

4. If the fire alarm panel also functions in burglary mode, initiate a burglary alarm and ensure the smoke detectors do not sound.

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S0112-00

All smoke detectors on the 4-wire fire zone will sound temporal 3 only from a fire alarm event.

**NOTE:**

- Program zone section attributes for bell output to be pulsing.
- PGM2 must be programmed for sensor reset.
- PGM1 must be programmed as Burglary and Fire Bell Output (01) with ON, ON, OFF attributes.
- RR2 switch must be set to OFF (factory default setting).