Honeywell

ADEMCO 5821

Temperature Sensor & Flood Detector

INSTALLATION AND SETUP GUIDE

GENERAL INFORMATION

The ADEMCO 5821 Temperature Sensor & Flood Detector is a wireless transmitter used with Honeywell's ADEMCO alarm systems that support 5800 series devices. The 5821 can be configured to operate as a stand-alone temperature sensor and/or as either a Remote Temperature Sensor ***or*** Flood Detector. The 5821 in combination with the ADEMCO T280R temperature probe is ideal for monitoring refrigerators and freezers in restaurants, kitchens and warehouses where food storage is a concern. The 5821 in combination with the ADEMCO 470PB probe can be used to sense floods in basements and other areas where there is a possibility of flooding. The 5821 will send an alarm, via its RF transmitter, to the control when the preset temperature limit is exceeded or when a flood is detected. Temperature monitoring and flood detection is dependent on the operating mode selected. Refer to Table 1 for applicable operating modes.

Room temperature is monitored at the device using the 5821's internal sensor. Refrigerator or Freezer temperature is monitored remotely using the ADEMCO T280R temperature probe. Flood detection is monitored remotely using the ADEMCO 470PB probe with the supplied resistor. A separate 5821 is required for each external probe being used.

In refrigerator or freezer applications, when the temperature increases past the high threshold limit and a delay of greater than 30 minutes passes, an alarm is triggered. This preset delay offers greater reliability against false alarms, especially due to open refrigerator or freezer doors.

A 3-volt lithium battery powers the 5821. If the battery voltage gets too low, the 5821 sends a low battery signal to the control panel.

INSTALLING/REPLACING THE BATTERY

Important Notes:

- Use 3-volt lithium battery:
  Duracell DL 123A or Panasonic CR123A.
- Observe polarity.
- When replacing the battery, wait at least 30 seconds after removing the old battery, before installing the new one.

Install or replace the battery as follows:

1. Remove the transmitter's top cover by inserting the flat blade of a small screwdriver into the pry-off slot at one end of the unit (see Figure 1 for location), and slightly twisting the blade until the cover disengages.
2. Install a 3-volt lithium battery as shown in Figure 1.

TAMPER SUPERVISION

The 5821 tamper supervision feature (Loop 4) causes a trouble signal to be sent to the control if the unit's cover is removed from the base or if an external probe is used and the wire is cut (open) or the probe is shorted. The tamper switch is also used to program the unit's serial number and loop assignments to the control panel.

SETTING THE OPERATING MODE

Table 1 provides a list of the various operating modes of the 5821 with the respective Loop and DIP Switch settings for each. Note that Cold Temp Sensing can be used in combination with any of the other operating modes. To use the transmitter to monitor two different conditions, you must program each loop used on the 5821 as its own zone, and you must set the DIP Switches as shown for the combination functions in Table 1.

PROGRAMMING THE UNIT

Once you have selected an operating mode and have set the DIP Switches accordingly, you must enroll the transmitter in the control panel. When programming the transmitter in the control panel, note that you must program a separate zone for each loop you are using on the transmitter. To program:

1. Enter the control's Zone Programming mode.
2. Enter the zone number to be programmed.
3. Enter the applicable zone type when prompted (zone types such as 24-Hr. Aux, Waterflow, etc. should be used) depending on the function of the zone and the control panel being used (see the control panel's instructions for available zone types and definitions).
4. When prompted, enter Input Type 03 (3 on some controls) – Supervised RF Transmitter.
5. When prompted for the serial number, transmit from the detector by pressing the tamper switch.
6. When the serial number is displayed, transmit from the detector again by pressing the tamper switch.
   The current loop number (4) will begin to flash.
7. Manually change the loop number to the desired loop number for the zone (according to the application—see Table 1).
8. When programming for this zone is complete, program other zones for the transmitter as necessary (each loop requires its own zone.
9. Exit Programming mode when programming is complete, and test the detector. Refer to the Testing section.

MOUNTING THE DETECTOR

You can mount the 5821 on a wall or ceiling within the protection area. The following notes apply:

- The 5821 may be installed in any direction.
- When used in-conjunction with the ADEMCO 470PB flood sensor probe, use no more than 48 inches of wire from the 5821 to the flood sensor and connect the termination resistor across the probes terminals.
- When used in-conjunction with ADEMCO T280R temperature probe, use the shortest wire possible (less than 96 inches) to improve the signal integrity.
- Although the unit can be mounted directly to a surface, we recommend that the mounting plate be used for ease of removal for servicing if necessary. Avoid mounting the detector near heat generating devices (e.g. ovens, heat vents, furnaces, boilers) or to a metal cabinet or surface.

Wireless Transmission Path Test

A good RF transmission path must be established from the proposed mounting location before permanently installing the detector. To determine that there is good signal reception from the proposed location, perform the test procedure described in TESTING THE DETECTOR section.

Once a good RF transmission path is confirmed, mount the detector as follows, referring to Figure 1.

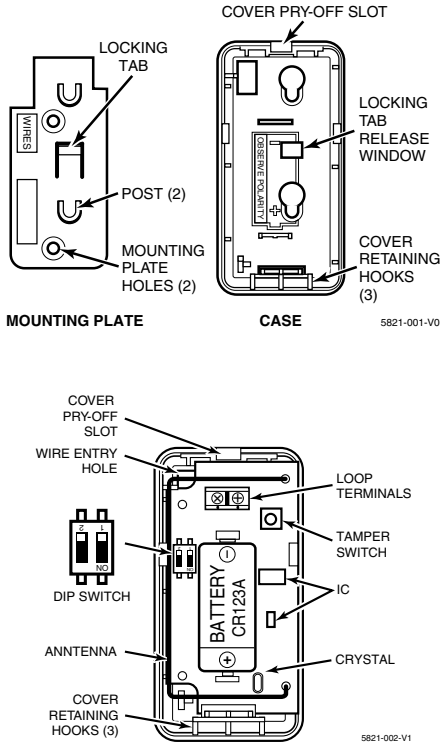

Figure 1

To mount the detector, proceed as follows:

1. Remove the transmitter's top cover by inserting the flat blade of a small screwdriver into the 'pry-off' slot at one end of the unit (see Fig. 1 for location), and slightly twisting the blade until the cover disengages.

IMPORTANT: DO NOT remove the circuit board from the back case plastic.

2. Remove the battery.
3. Disengage the attached mounting plate from the case by inserting the blade of a small screwdriver into the locking tab release window (see Figure 1) and pressing it against the locking tab, while sliding the mounting plate upward along the case back until free.
4. Install the mounting plate, with its two case- holding posts pointing up (in this example), in the location selected. Use the flat-head screws supplied.
5. For surface wiring entry, two thin "breakout" areas are provided in the case wall (see Figure 1).
6. Attach the case back to the mounting plate by sliding the keyhole slots in the case back down onto the mounting plate's case holding posts. The locking tab will click as the case back locks in place.

External Probe Wiring Connections (If used)

7. With the battery still not inserted, connect the wires to the unit's sensor terminals (see Figure 1).
8. Install the battery.

IMPORTANT:
This detector should be used for property protection. Reliance should not be placed on this detector for life safety. When life safety is involved, smoke detectors MUST also be used. The flood probe must not be painted.

TESTING THE DETECTOR

The test procedure should be performed to determine a good RF transmission path and again after installation is completed. To test,

1. Activate the control panel's test mode.
2. Activate the detector by removing and replacing the cover. The system's keypads should beep and each zone the 5821 is programmed for will be displayed.
3. Exit the control's test mode (User Code + OFF).

MAINTAINING PROPER OPERATION

To maintain the detector in proper working condition, it is important that you observe the following:

Replace the battery when the system indicates that the 5821 reported a low battery condition.

Units should never be relocated without the advice or assistance of the alarm service company.

Table 1: 5821 Operating Mode Choices

Operating Mode	Dip Switch Setting	Loop	Faults when...	Restores when...	External Probe †
Cold Temp Sensing	SW1=OFF SW2=OFF	1	temperature drops below 45°F (7°C) for >10 minutes.	temperature rises 48°F (9°C) for >4 minutes.	No external probe
Hot Temp Sensing	SW1=OFF SW2=OFF	2	temperature rises above 95°F (35°C) for >10 minutes.	temperature drops below 92°F (33°C) for > 4 minutes.	No external probe
Warm Temp Sensing	SW1=ON SW2=OFF	2	temperature rises above 75°F (24°C) for >10 minutes.	temperature drops below 72°F (22°C) for > 4 minutes.	No external probe
Freezer Temp Monitoring	SW1=OFF SW2=ON	2	temperature rises above 10°F (-12°C) for >30 minutes.	temperature drops below 7°F (-14°C) for > 4 minutes.	Use T280R external probe
Refrig. Temp Monitoring	SW1=ON SW2=ON	2	temperature rises above 42°F (6°C) for >30 minutes.	temperature drops below 39°F (4°C) for > 4 minutes.	Use T280R external probe
Flood Sensing	SW1=OFF SW2=ON	3	external probe tips are in contact with water for >3 minutes.	probe tips have not been in contact with water for > 3 minutes.	Use 470PB ext. probe shunted by 2.2MΩ resistor ††
Cold Temp Sensing **&** **Warm** Temp Sensing	SW1=ON SW2=OFF	1=Cold	temperature drops below 45°F (7°C) for >10 minutes.	temperature rises 48°F (9°C) for >4 minutes.	No external probe
		2=Warm	temperature rises above 75°F (24°C) for >10 minutes.	temperature drops below 72°F (22°C) for > 4 minutes.	
Cold Temp Sensing **&** **Hot** Temp Sensing	SW1=OFF SW2=OFF	1=Cold	temperature drops below 45°F (7°C) for >10 minutes.	temperature rises 48°F (9°C) for >4 minutes.	No external probe
		2=Hot	temperature rises above 95°F (35°C) for >10 minutes.	temperature drops below 92°F (33°C) for > 4 minutes.	
Cold Temp Sensing **&** **Refrig.** Temp Monitoring	SW1=ON SW2=ON	1=Cold	temperature drops below 45°F (7°C) for >10 minutes.	temperature rises 48°F (9°C) for >4 minutes.	Use T280R external probe
		2=Refrig	temperature rises above 42°F (6°C) for >30 minutes.	temperature drops below 39°F (4°C) for > 4 minutes.	
Cold Temp Sensing **&** **Freezer** Temp Monitoring	SW1=OFF SW2=ON	1=Cold	temperature drops below 45°F (7°C) for >10 minutes.	temperature rises 48°F (9°C) for >4 minutes.	Use T280R external probe
		2=Freezer	temperature rises above 10°F (-12°C) for >30 minutes.	temperature drops below 7°F (-14°C) for > 4 minutes.	
Cold Temp Sensing **&** **Flood** Sensing	SW1=OFF SW2=ON	1=Cold	temperature drops below 45°F (7°C) for >10 minutes.	temperature rises 48°F (9°C) for >4 minutes.	Use 470PB ext. probe shunted by 2.2MΩ resistor ††
		3=Flood	external probe tips are in contact with water for >3 minutes.	probe tips have not been in contact with water for > 3 minutes.	

† When the 5821 is used with either external probe, an open-circuit or a short-circuit of the probe's wiring results in an alarm on that loop, and a trouble condition on all other programmed loops.

†† Use a maximum wire length of 48 inches between the 5821 and the 470PB probe.

SPECIFICATIONS

Power: 3V lithium battery
(Duracell DL123A, Panasonic CR123A)

CAUTION: Risk of fire, explosion, and burns. Do not recharge, disassemble, heat above 212°F (100°C) or incinerate. Dispose of used batteries promptly. Keep away from children.

Operating Temperature:	14°F (-10°C) to 104°F (+40°C)
Operating Voltage:	3.2VDC
Dimensions:	3.1" length, 1.6"wide, 1.0" depth
Sensor Parameters:	
Cold Temperature (Freeze) Detector	45°F (7°C)
Warm Temperature Detector	75°F (24°C)
Hot Temperature Detector	95°F (35°C)
Refrigerator Failure Detector	42°F (6°C)
Freezer Failure Detector	10°F (-12°C)
Hysteresis †††	3°F (-16°C)
Flood Sensor	¼ inch of water covering the probe
Response Time Tolerance ††††	+50%, -20%
Temperature Measurement Accuracy (internal temp. sensor or external temp. probe)	±3°F (-16°C)

††† Hysteresis is the temperature difference between "fault" and "restore" points.

†††† The Response Time Tolerance is the time duration necessary for the device to respond to a "fault" or "restore" condition. This time does not take into account the time necessary for the probe and circuitry to equalize to the ambient temperature. This feature prevents false alarms due to open doors and other transitory conditions.

TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.

The installer should assume the responsibility of developing and offering a regular maintenance program to the user as well as acquainting the user with the proper operation and limitations of the alarm system and its components parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to ensure the system's proper operation at all times.

FCC / IC STATEMENT

This device complies with Part 15 of the FCC rules and RSS210 of Industry Canada. Operation 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.

Unauthorized changes or modifications could void the user's authority to operate the equipment.

REFER TO THE INSTALLATION AND SETUP GUIDE FOR THE CONTROL PANEL WITH WHICH THIS DEVICE IS USED FOR WARRANTY INFORMATION AND LIMITATIONS OF THE ENTIRE ALARM SYSTEM.

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