

PT1000 Temperature Sensor

For easier retrofits of Copeland products into stores with PT1000 refrigeration control products, Copeland supplies the PT1000 Temp Sensor Adapter (P/N 535-2704).

This adapter allows Copeland 16AI and MultiFlex input boards to read the values of the PT1000. As a result, stores with PT1000 control products may replace them with Copeland controllers and I/O boards without the need for replacing and rewiring existing temperature sensors in the store.

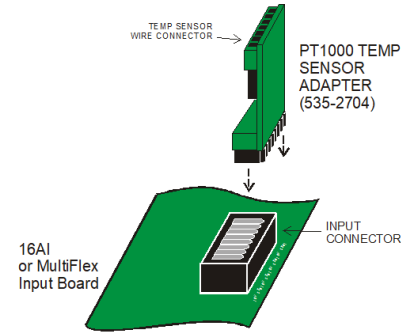


Figure 1: PT1000 Temp Sensor Adapter

Wiring Instructions

1. Disconnect all temperature sensor leads from the PT1000 control boards.
2. Each PT1000 Temp Sensor Adapter has four pairs of screw terminals for connection to up to four PT1000 temperature sensors.

Wire the leads of each sensor to the matching points on the adapter as shown in **Figure 2**.

3. Connect one of the two +5VDC terminals on the adapter to a +5V power output on the MultiFlex (located at the bottom of the MultiFlex board) or 16AI (located on the right-hand side of the board). The two terminals are tied together, so you will only need to connect one terminal to the +5V power source. You may use the second terminal to "daisychain" multiple adapters to the same +5V power source (see **Figure 3**). **DO NOT GROUND EITHER OF THE +5V TERMINALS**
4. Plug the PT1000 Temp Sensor Adapter into an 8-pin connector on the input board, as shown in **Figure 1**.
5. For every input point that has a PT1000 temperature sensor attached to it, locate the corresponding input type dip switch. Input type dip switches are located in switch banks S1 and S2 for all Copeland input board types. S1 switches 1-8 correspond to points 1 through 8 on the board, while S2 switches 1-8 correspond to points 9 through 16 on the board.

- For 16AI boards, each point with a PT1000 sensor connected to it must have its input dip switch set to the OFF (down) position.
- For MultiFlex boards, each point with a PT1000 sensor connected to it must have its input dip switch set to the OFF (left) position.

Repeat steps 1 through 5 for each group of four PT1000 temp sensors you wish to set up.

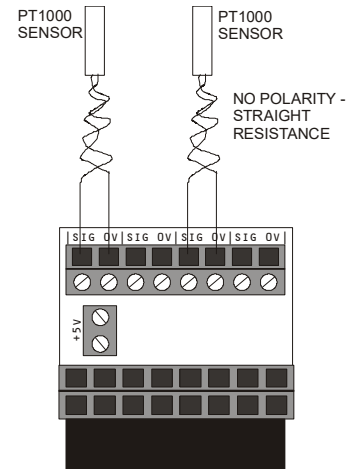


Figure 2: Temp Sensor Wiring

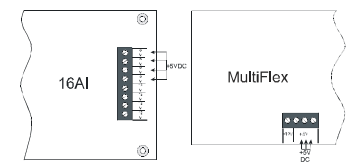
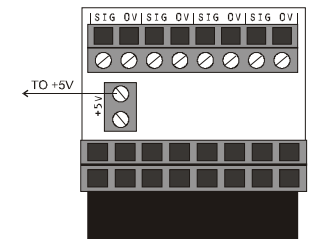


Figure 3: Power Wiring

Configuration Setup Using E2 Version Below 2.84 (Range of -46°C to 173°C)

Note that this setup is only for use with MultiFlex boards.

Once the PT1000 Temp Sensor Adapter and the PT1000 sensors are properly connected, you must set up each input point as a standard temperature sensor type. You must also configure the MultiFlex board to convert the PT1000 to a standard ECT temperature sensor.

MultiFlex Setup with HHT (Hand-held Terminal)

1. Press the down arrow three times from the Home (F1 screen):

```
SELECT:→3
1= STATUS
2= STATUS-ENG UN
3= INPUT CONFIG
```

2. Press the left/right arrow to select **3 = INPUT CONFIG**. Press **3** (the corresponding number will appear next to the arrow).
3. Press the down arrow twice to access the Input Configuration screen:

```
I01: → PT1000-STDF
I02:  TEMP-DF
I03:  TEMP-DF
I04:  TEMP-DF
```

4. Press the left/right arrow (and use the . and - keys on the HHT to scroll options) and select **PT1000-STDF (°F)** or **PT1000-STDC (°C)**.

Note: Do not select **PT1000-DF** or **PT1000-DC**.

5. Press the down arrow through the input sensor selections to access the Filtering screen:

Note that filtering can also be configured in the E2 and is recommended.

```
01-04 FILTER:→0
05-08 FILTER: 0
09-12 FILTER: 0
13-16 FILTER: 0
```

6. Press the left/right arrow to add a filter value of the recommended 15-20 seconds (32 max) on the correct set of inputs. The filtering will reduce the effect of small changes.

Note that if the MultiFlex board is replaced, the settings will have to be re-entered.

Temperature Sensor Point Setup in E2

1. Log in using a username/password that allows configuration changes (usually level 3 or above).
2. Press **Menu, 7 - System Configuration**, and **1 - Input Definitions** to navigate to the Input Status screen, or press **Alt + I** keys to go directly to the screen.
3. Use the arrow keys to highlight the row that corresponds to a board and point you wish to set up as a PT1000 sensor and press **Enter**.

Type	Board	Point	Type	Application	Association	Value
16AI	01	01	A			NONE
16AI	01	02	D			OFF
16AI	01	03	A			NONE
16AI	01	04	-			
16AI	01	05	-			
16AI	01	06	-			
16AI	01	07	-			
16AI	01	08	-			
16AI	01	09	-			
16AI	01	10	-			
16AI	01	11	-			
16AI	01	12	-			
16AI	01	13	-			
16AI	01	14	-			
16AI	01	15	-			
16AI	01	16	-			

Press LOOK UP to choose application

F1: SETUP F2: DEL/MOD F3: OFFSET F4: LOOK UP

4. Press **F1 - SETUP**. (If the board and point was undefined previously, you will be prompted to specify whether the datatype input is analog or digital. **Select 1 - ANALOG**.)
5. In the Analog Input setup screen, highlight the **Sensor Type** field and press **F4 - LOOK UP**. Locate and highlight **Temperature** from the Output List Selection menu and press **F1 - SELECT** or Enter.

11-23-10 RX-400 Unit 3 15:41:36
ANALOG INPUT NAMES FULL *ALARM*

Board/Point # : 1.1
Point Name : .AI.03.01.01
Sensor Type : Temperature
Select Eng. Units: DF
Default on Open : NONE
Default on Short : NONE
Default Other : NONE
Change Delta : 0.18

Multi. Factor : 1.0
Sensor Offset : 0

Modify Sensor Properties
Modify ? None

OCCUPANCY : : :
OUTPUT : : : L

Scroll using Next/Prev keys | Sensor Type Select

F1: SET ALARMS F2: SET LOGGING F4: LOOK UP F5: CANCEL

6. In the **Usage Setup** box, set the values of **Logging Use** and **Control Use** fields to **Average** by pressing **F4 - LOOK UP**:



7. In the **Averaging Setup** box, change the **Average Window** field value to at least 15 seconds.

Note to enter the value in HHH:MM:SS time format (use values in the 15-25 second range).



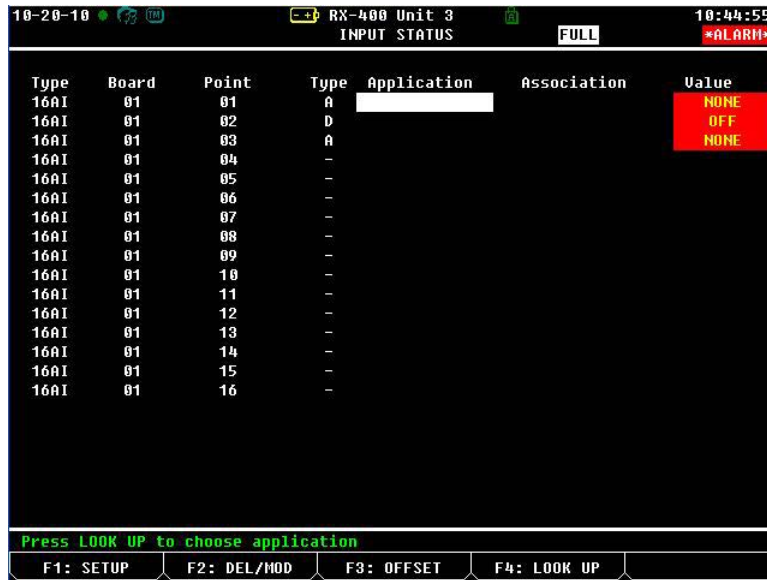
8. Press the **Back** key twice to save the changes you entered and return to the Input Status screen.

Configuration Setup Using E2 Version 2.84 and Above (Range of -92°C to 196°C)

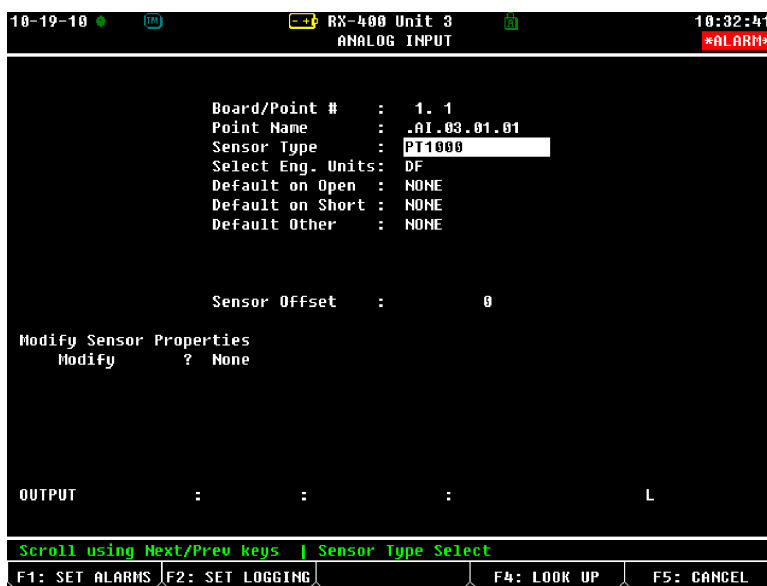
Setup is optional for the MultiFlex boards, but to view the PT1000 in Engineering Units in the HHT, select PT1000-DF or PT1000-DC for inputs with PT1000 sensors. Do Not select PT1000-STDF or PT1000-STDC as described in Steps 1-4 on page 3.

Temperature Sensor Point Setup in E2

1. Log in using a username/password that allows configuration changes (usually level 3 or above).
2. Press Menu, **7 - System Configuration**, and **1 - Input Definitions** to navigate to the Input Status screen, or press **Alt + I** keys to go directly to the screen.
3. Use the arrow keys to highlight the row that corresponds to a board and point you wish to set up as a PT1000 sensor and press **Enter**.



4. Press **F1 - SETUP**. (If the board and point was undefined previously, you will be prompted to specify whether the datatype input is analog or digital. **Select 1 - ANALOG**.) In the Analog Input setup screen, highlight the **Sensor Type** field and press **F4 - LOOK UP**. Locate and highlight **PT1000** from the Output List Selection menu and press **F1 - SELECT** or **Enter**.



- Highlight the **Output** field at the bottom of the Analog Input setup screen, press **F2: SET LOGGING** to display the Analog Log Setup screen.
- In the **Usage Setup** box, set the values of **Logging Use** and **Control Use** fields to **Average** by pressing **F4 - LOOK UP**:



- In the **Averaging Setup** box, change the **Average Window** field value to at least 15 seconds.
Note to enter the value in HHH:MM:SS time format (use values in the 15-25 second range).



- Press the **Back** key twice to save the changes you entered and return to the Input Status screen.

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