



# ELECTRONIC THERMOSTAT: C1024 FOR THERMOELECTRIC ZONE VALVES

Modulating 24 Vac pulsed output  
For N.O. or N.C. valves  
For heating or cooling applications

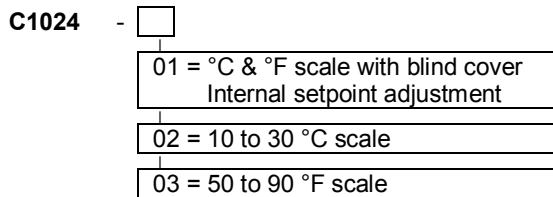


## DESCRIPTION

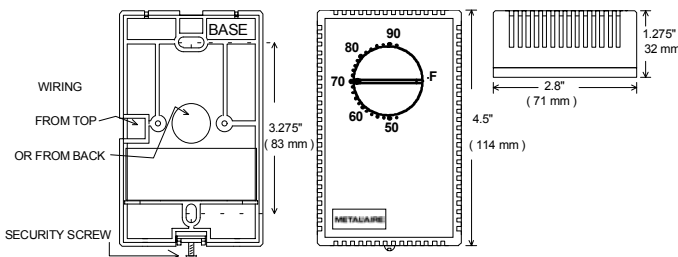
The C1024 series thermostats are microcomputer-based, proportional and integral (PI) devices with one 24 Vac pulsed output (time proportioning). The thermostats are designed to be used with thermoelectric valve actuators (wax valve). The output modulates the amount of open time vs. close time on an 8 minutes cycle. The thermoelectric valve is either fully open or fully closed. The best performances are on perimeter reheat with hydronic hot water baseboards. The thermostats also contain one dip switch to adjust for the following applications:

- Heating with N.C. valves
- Cooling with N.O. valves
- Heating with N.O. valves
- Cooling with N.C. valves

## HOW TO ORDER



## DIMENSIONS



## SPECIFICATIONS

Operating Conditions: -30 °C to 50 °C (-22 °F to 122 °F)  
0% to 95% R.H. non-condensing

Sensor: Local 47 K NTC thermistor  
Resolution: ± 0.1 °C (± 0.2 °F)  
Control accuracy: ± 0.2 °C (± 0.4 °F) (calibrated)

Ranges: C1024-01: Blind °C & °F  
C1024-02: 10 °C to 32 °C  
C1024-03: 50 °F to 90 °F

Proportional band for room temperature control: 1.8°C (3.2°F)

24 Vac pulsed output: 0.5 A max at 30 Vac.

Power: 24 Vac -15%, +10% 50/60 Hz; 2 VA

## 24 Vac PULSED OUTPUT (TIME PROPORTIONING) –

This output is designed to give true PI time proportioning modulation out of 2 position 24 Vac on/off relays or valves.

This time proportioning modulation gives a much more precise temperature control than conventional mechanical on / off thermostats with anticipator. When stabilized, the thermostats will cycle the end device (relay or valve) 8 times per hour with a duty cycle that varies with demand.

The 24 Vac pulsed output controls the room temperature using a time proportioning control algorithm on an 8 minute time cycle.

Ex.:

PI demand	Time on	Time off	Total cycle
50 %	4 min.	4 min.	8 min.
25 %	2 min.	6 min.	8 min.

## THERMOSTAT INSTALLATION

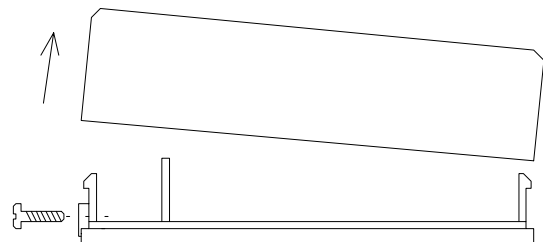
**Important: Electronic controllers require special care for wiring and startup. To avoid problems, carefully follow the procedures below.**

Be sure to have all the literature on hand for all components installed: controller, actuators, relay, etc..

Look at the wiring diagrams, and study them carefully. Be sure that you understand how the system is supposed to work.

Make the wiring according to the wiring diagrams. Respect polarity for power terminals # 3 & # 4 between multiple controllers if the same transformer is used.

- Remove security screw on left side of thermostat cover.
- Open up by pulling on the bottom side of thermostat.



**A) Location:**

- 1- Shouldn't be installed on outside wall.
- 2- Must be installed away from any heat source.
- 3- Shouldn't be affected by direct sun radiation.
- 4- Nothing must restrain vertical air circulation to the thermostat.

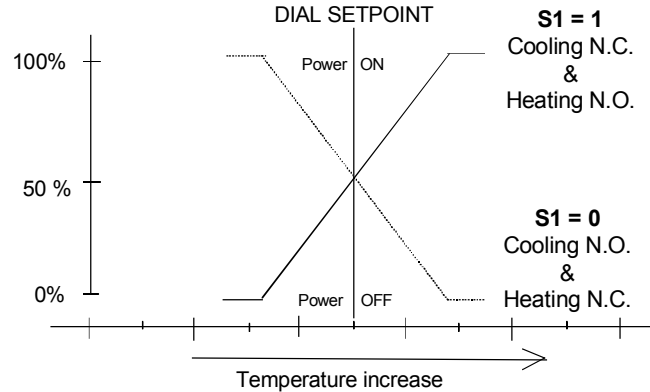
**B) Installation:**

- 1- Pull out cables 6" out of the wall.
- 2- Wall surface must be flat and clean.
- 3- Separate the thermostat and the base by pulling the cover by the bottom (same as the security screw.)
- 4- Insert cable in the central hole of the base.
- 5- Align the base and mark the location of the two mounting holes on the wall. Install proper side of base up.
- 6- Install shields in the wall.
- 7- Insert screws in mounting holes on each side of the base. **DO NOT OVERTIGHTEN!**
- 8- Strip each wire 1/4 inch.
- 9- Insert each wire according to wiring diagram.
- 10- Reinstall the cover ( top side first ) and gently push back extra wire length in the hole in the wall.
- 11- Install security screw.

**DIP switch ADJUSTMENT per applications —**

S1	APPLICATION SWITCH
0	Heating with N.C. valves Cooling with N.O. valves
1	Heating with N.O. valves Cooling with N.C. valves

**CONTROL CURVE AND SEQUENCE**



**TYPICAL APPLICATIONS**

Room Temperature Control With: Thermoelectric Valve Actuators			
<p><b>Dip switch position</b></p> <p>Heating with N.C. valves Cooling with N.O. valves</p>	<p><b>S1</b></p> <p>0</p>	<p>The output is rated at 0.5 A. max at 30 Vac.</p>	
Room Temperature Control Thermostat  <p style="text-align: center;">N.C. Valve Heating &amp; N.O. Valve Cooling</p>			
<p>Heating with N.O. valves Cooling with N.C. valves</p>	<p>1</p>		
Room Temperature Control Thermostat  <p style="text-align: center;">N.O. Valve Heating &amp; N.C. Valve Cooling</p>			