

### Features

- For air duct mounting only
- Selectable P or PI function
- Single / dual 3-wire floating or 2-10 / 0-10 VDC outputs
- Selectable 2-10 or 0-10 VDC output
- I-time : selectable at 0, 2, 20 or 30 mins
- P-band : selectable at 1, 3, 5 or 10 K
- 2 or 3 K deadband for dual-output models
- Seasonal changeover sensor available with auto changeover capability

### General

The ED24 Series Duct-type Standalone Digital Temperature Controller is designed for temperature control in industrial, commercial and residential environments. It features microprocessor-based control that provides various models for different applications; 3-wire floating or 0-10 VDC control outputs. The controller combines a proportional plus integral (PI) control algorithm for precise and stable control under varying system capacity and load conditions.

### Ordering

To order the ED24 Series thermostat, contact the nearest Cyrus' representative. Specify the desired product code number from product overviews.

### Product Overview

The ED24 Temperature Controllers are powered by 24 V AC with 4 basic models that cover all type of standalone temperature control applications. There are models for cooling only, heating only and heating/cooling fan coil system integrate with 3-wire floating or 0-10 VDC input valve control. On-board high accuracy NTC sensor allows precision comfort control over occupied space area.

#### ED24T1

The ED24T1 temperature controller that is designed for cooling only or heating only heat exchange or distribution unit with 3-wire floating 24 VAC valve actuator application. Simply rotating the set-point dial, allows users to adjust the temperature set-point. All 24 VAC output by triac that can withstand max. of 20 VA.



#### ED24T2

The ED24T2 temperature controller that is designed for cooling / heating heat exchange or distribution unit with 3-wire floating 24 VAC valve actuator application. Simply rotating the set-point dial, allows users to adjust the temperature set-point. All 24 VAC output by triac that can withstand max. of 20 VA.

#### ED24A1

The ED24A1 temperature controller that is designed for cooling only or heating only heat exchange or distribution unit with 0-10 VDC valve actuator application. Simply rotating the set-point dial, allows users to adjust the temperature set-point.

#### ED24A2

The ED24A2 temperature controller that is designed for cooling / heating heat exchange or distribution unit with 0-10 VDC valve actuator application. Simply rotating the set-point dial, allows users to adjust the temperature set-point.

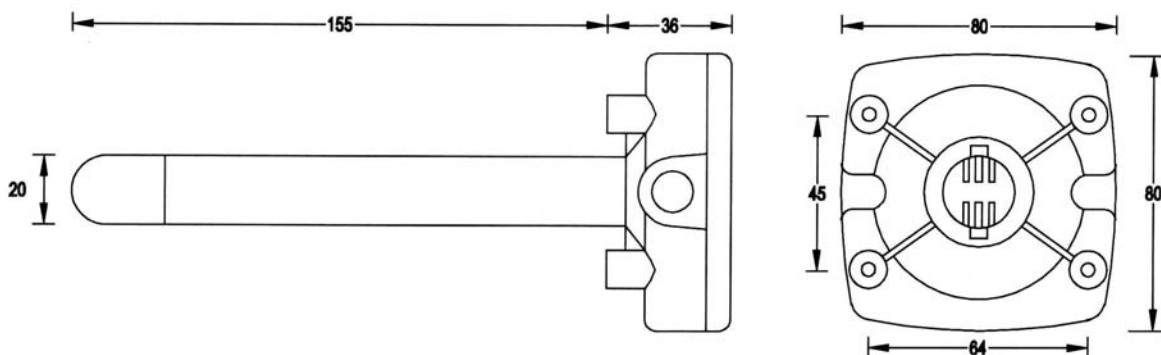
## Specifications

Product Model Number	ED24-T1 Single 3-wire floating, cool only or heat only ED24-T2 Dual 3-wire floating, auto cool/heat changeover with selectable deadband ED24-A1 Single 2-10/0-10 VDC output, cool only or heat only ED24-A2 Dual 2-10/0-10 VDC outputs, auto cool/heat changeover with selectable deadband
Power Requirements	24 V $\pm$ 15%, 50/60 Hz
Power Consumption	1 VA @ 24 VAC
3-Wire On-Off or Floating Output Ratings	20 VA @24 VAC
0-10 VDC Control Signal Load	Minimum 100 k $\Omega$ Impedance
Temperature Set Point Range	0-30 °C
Deadband of Dual-Output Models	Selectable at 2 K or 3 K between cooling Mode and heating Mode, factory set at 3 K
Proportional Band	Selectable at 1, 3, 5 or 10 K, factory setting 5 K
Integral Time	Selectable at 0, 120, 1200 or 1800 s, factory setting 1200 s. Setting = 0 means integral time being turned off (P output only).
Sampling Time	10 s
Sensing Element	NTC thermistor, 10 k $\Omega$ @ 25 °C
Body Material	Self-extinguishing, Molded ABS
Finish	Off White and Dark Grey Color
Ambient/Storage Temperature Limits	0 to 50 °C / -30 to 50 °C, 10% to 90% RH Non-condensing
Connections	Non-removable Terminal Blocks
Power and Control Wires	Wire size 1 mm <sup>2</sup> or 18 AWG solid copper recommended
Sensor Wires	22 or 24 AWG twisted shielded pair double-insulated cable
Agency Approval	CE Mark Compliant to EMC Directive pending
Shipping Weight	0.3 kg
Dimensions	See Dimensions in mm

## Application & Wiring Notes

- On a single-output cool unit, connecting a shunting wire between terminals for seasonal changeover sensor forces the unit to go into heating mode.
- On a single-output unit, connecting a TE10-1 changeover sensor will automatically switch the unit between cooling and heating mode. When the sensor temperature exceeds 30°C, the controller enters into heating mode.
- On a dual-output unit, the main output is always associated with the cooling controlled device and the secondary output with the heating controlled device.
- The seasonal changeover sensor should be wrapped around the supply water pipe when associated with a water system. When the changeover sensor temperature exceeds 30 °C, the controller enters into heating mode.
- When using the seasonal changeover sensor, run the wires away from any electric motors or power wiring. Failure to do so may result in poor thermostat performance due to electrical noise.
- 22 or 24 AWG twisted shielded pair double-insulated cable is recommended as seasonal changeover sensor wiring and its length must not exceed 25 m.
- Do not bundle and run power wiring and seasonal changeover sensor wiring in the same conduit.
- It is highly recommended that the 24 VAC power supply is interlocked to the air-conditioning system so that the controller is shut down when the air-conditioning system is turned off.

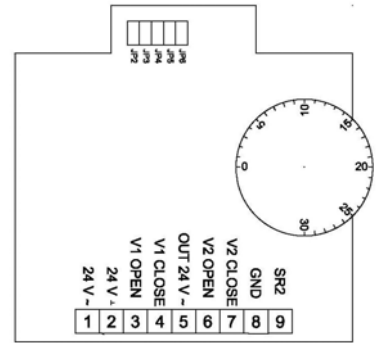
## Dimensions in mm



## Jumper Settings

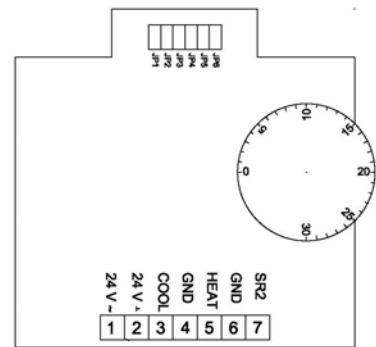
3-Wire Floating Controller				
Function Description	Jumper Number	Jumper Setting	Factory Setting	
Proportional band	JP2	JP3	00: 1 K	
	JP2	JP3	01: 3 K	
	JP2	JP3	10: 5K	√
	JP2	JP3	11: 10 K	
Integral time	JP4	JP5	00: 0 min (P only)	
	JP4	JP5	01: 2 mins	
	JP4	JP5	10: 20 mins	√
	JP4	JP5	11: 30 mins	
Deadband (for 4-pipe models only)	JP6	0: 2 K		
		1: 3 K	√	

Notes: 0 = jumper removed  
1 = jumper inserted



0-10 VDC Proportional Controller				
Function Description	Jumper Number	Jumper Setting	Factory Setting	
Output voltage	JP1	0: 0-10 VDC	√	
	JP1	1: 2-10 VDC		
Proportional band	JP2	JP3	00: 1 K	
	JP2	JP3	01: 3 K	
	JP2	JP3	10: 5 K	√
	JP2	JP3	11: 10 K	
Integral time	JP4	JP5	00: 0 s (P only)	
	JP4	JP5	01: 2 mins	
	JP4	JP5	10: 20 mins	√
	JP4	JP5	11: 30 mins	
Deadband (for 4-pipe models only)	JP6	0: 2 K		
		1: 3 K	√	

Notes: 0 = jumper removed  
1 = jumper inserted



## Wiring Diagrams

