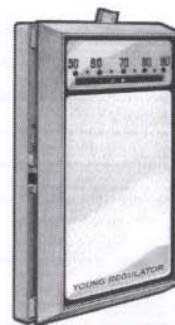


Thermostats and Accessories

Thermostats

T-312-CE

T-312-CE is a deadband type floating control thermostat designed to control Young Regulator dampers in heat only or cool only systems. It may also be used with 2000 Series dampers for automatic changeover. Unit will mount on wall surface or on standard wall box.



T-312-CE



T-313-CE

T-313-CE

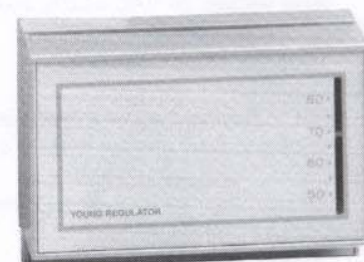
T-313-CE is similar to T-312-CE but has a damper mode heat/cool switch incorporated on the stat. It is used for manual changeover of the damper on a combination heat/cool system.

T-311-CE (not shown)

T-311-CE is similar to T-312-CE except it is designed exclusively for 2-position damper control. It may be used with any of the spring return 2-wire dampers or 3-wire dampers when modulation is not necessary. This stat provides temperature control within 1°F giving closer control of space temperature.

T-641

T-641 is a horizontal, commercial-type floating control thermostat that controls actuators on VAV dampers. T-641 can be used with a variety of Young Regulator dampers, including applications like automatic changeover when combined with our 2000 Series dampers. When a change in temperature occurs, the T-641 drives the actuator to an intermediate position and then opens the circuit to the actuator. The actuator remains in this position until there is a temperature change at the T-641. The T-641 stat has a smaller dead-band than our T-312-CE for more precise temperature control. T-641 activates the actuator at 1-1/2 degrees above or below set point.

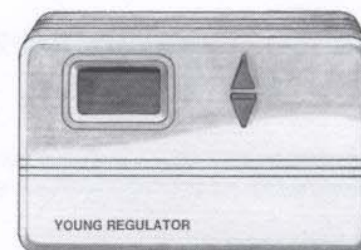


T-641

T-322

T-322 is a microprocessor-based digital display thermostat with 4-wire proportional control. It can be configured for cooling or automatic changeover. The microprocessor combines a proportional plus integral (PI) control algorithm with "fuzzy logic" to provide precise and stable control under varying system capacity and load conditions, without the need for tuning or calibrating the control algorithm in the field. Pulse width modulation provides temperature control within $\pm \frac{1}{2}^\circ$ Fahrenheit.

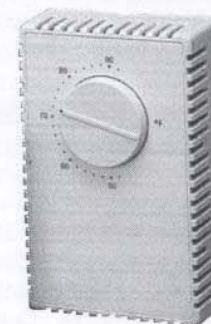
Auto Changeover is applied to this stat only by using a sensor (S-323) on the supply or return side of the duct. Used with Models 4075, 3045, 3085 or 9100, the sensor determines if the system is in the heating or cooling mode. When the duct air temperature is within 10°F, the T-322 will open the damper for 3 minutes to get a definitive reading. If the air temperature remains within 10°F over the space temperature, this purge mode will repeat each hour. Please contact factory for other applications.



T-322

T-422

T-422 is a microprocessor-based digital thermostat similar the T-322 except it has a 3-wire proportional control, no visual display, adjustment knob for temperature set point, and is vertically mounted.



T-422

Note: See AMP. draw of motor for maximum slaves off one thermostat.

See Reverse Side for Additional Information and Accessories

YOUNG REGULATOR COMPANY
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(216) 663-5646 • Fax (216) 663-1830

T-322 and T-422 Thermostats

	Specifications
Supply Voltage	20 to 30 VAC, Nominal 24 VAC
Power Consumption	25 mA Maximum at 24 VAC
Heating and Cooling Output Ratings	10 VA
Sensor Measurement Range	-22° to 172°F (-30 to 78C)
Set Point Adjustment Range	50° to 90°F (10 to 32C)
Set Point Deadband (Auto Changeover Models Only)	3°F (1.6C) deadband between heating and cooling set points
Operating Temperature Limits	32° to 130°F (0 to 55C)
Ambient Storage Temperature Limits	-30° to 130°F (-34 to 55C)

A typical performance curve for the control algorithm is shown in Figure 1. The algorithm is optimized for controlled devices (valves and dampers) with a stroke of 60 to 180 seconds. Since the control algorithm is "burned in" to the microprocessor of the thermostat, the parameters cannot be adjusted. Therefore, the T-322 and T-422 are not recommended to be used on modulating controlled devices with a stroke time of less than 60 seconds or greater than 180 seconds.

T-641 Thermostat Specifications

ELECTRICAL RATINGS:

Input voltage: 24 VAC \pm 20%, 50.60 Hz

CONTACT RATINGS:

1 Amp @ 24 Vac Maximum

SWITCHING:

SPDT Floating Control. Coiled bimetal sensing element operates mercury switches.

TEMPERATURE ADJUSTMENT:

External lever for set point selection.

TEMPERATURE SCALE RANGE:

45°F to 85°F (7°C to 29°C)

THERMOMETER RANGE:

45°F to 85°F (7°C to 29°C)

DEADBAND (CONTROL SPAN):

3°F

AMBIENT TEMPERATURE (SHIPPING):

-40°F to 150°F

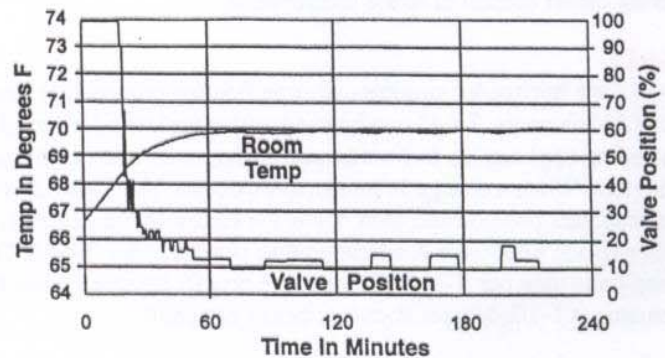


Figure 1: Typical Performance Curve for T-322 and T-422 Thermostats

The specifications above are nominal and conform to generally acceptable industry standards. Young Regulator is not responsible for damages resulting from misapplication or misuse of its products.

Accessories

R-316 Automatic Changeover Module - The R-316 relay PC board module with prewired 2-wire duct sensor is used to switch a damper to heating or cooling mode. The PC board and duct sensor are included as a package when a damper with automatic changeover (all 2000 Series models) is ordered. They can be ordered separately.

R-319 Return Relay - 24V relay powers any 3-wire motor in one direction, returning the damper to original direction when power is terminated. Ideal for make-up air tied into fan control or zoning large dampers when 3-wire control dampers are necessary.

TD Static Pressure Controller - The TD Static Pressure Controller is used on models 3092, 4090, and 4092 Bypass Dampers.

PF-306 Static Pressure Controller - The PF-306 Static Pressure Controller can be used to maintain duct static pressure either through bypass or directly through a pressure reducing damper. The controller can be mounted on the damper or duct.

3035 Transformer - 3035 is a plate-mounted transformer which mounts on any standard 4" x 4" conduit box and provides low voltage power for up to 4 dampers. 120V/24 V-40VA, 50/60Hz. Provides power to 8 dampers when using any of our modulating models.

S-323 Sensor - Automatic changeover sensor for T-322 and T-422 thermostats only. Connects directly to t-stat, sensing duct temperature and putting stat on heat or cool mode.

A201052 Micro Switch - Our A201052 field-addable micro switch allows exterior control of equipment for reheat, compressor, or burner control at an adjustable point in the stroke (from 0° to 90°) of the actuator. A201052 is mounted externally on the damper at the motor end with the switch contacts pointed to the top of the motor. For cool only.

Replacement Motors - Replacement motors are available for all motorized dampers manufactured by the Young Regulator Company. Please see our Price List or call the factory for detailed information and pricing.