THERMOSTATS & CONTROLLERS

HONEYWELL SINGLE- OR MULTI-LOOP STANDALONE CONTROLLER

T775 SERIES

DESCRIPTION

The **Honeywell Model T775** is a standalone multi-point and multi-loop controller designed for a wide range of applications. The I/O point mix is unit-specific with temperature, humidity, and pressure input models available. Relay or analog output models may be selected as well. Single-loop, two-loop, and reset controllers may be selected, all including a seven-day time clock for output disable or night setback. The relay output controllers have adjustabledifferential control algorithms. Analog output controllers have adjustable throttling range, proportional plus integral (PI), or proportional, integral, and derivative (PID) control. The backlit display is easy to read, and the menu-driven setup is simple. The **T775** is available in NEMA 1 or NEMA 4X enclosures for the most demanding environments.

Honeywell

T775M2048 closed door

T775M2078 open door with wiring

FEATURES

- ***Standalone controller***
- ***Multiple power input (24, 120, or 240 VAC)***
- ***Single- or dual-loop models***
- ***Throttling range, PI and PID tunable modulating models***
- ***Adjustable differential two-position models***
- ***Humidity, pressure, and universal input models***
- ***Two-position 10A relay model***
- ***Analog output 0 or 2 to 10 VDC, 4-20 mA, and 135Ω models***
- ***Integral seven-day time clock for night setback or shutdown***
- ***Remote night setback or shutdown input***
- ***°F or °C temperature display RH, PSI, In W.C. on W Models***
- ***Daylight savings time compensation***

SPECIFICATIONS

Supply Voltage	24, 120, or 240 VAC, 50/60 Hz
Supply VA	8 VA maximum at 60 Hz, 10 VA maximum at 50 Hz
Display	Backlit digital 2.5" x 1.5", configurable °F or °C
Operation	6-key, menu-driven, with simple programming lock
Memory	Program is non-volatile; time is retained for 24 hours
Clock	12 hour (AM/PM) for night setback/ shutdown, daylight savings time enable/disable
Scheduling	7-day, two events per day
Setpoint	Model specific (see I/O configuration table)
Temperature	-40° to 248°F (-40° to 120°C)
Humidity (T775U)	0-100%
Pressure (T775U)	-500 to 500 psi -30 to 30 inches W.C. -3000 to 3000 Pa or kPa
Signal Input	Model-specific (see I/O configuration table)
Temperature RTD	1.1 k at 77°F, PTC, 2.1 /°F, Platinum 1 kΩ at 32°F, 385 curve
Digital input	Dry contact, all models (Used for system shutdown or night setback)
Analog (T775U)	0-10 VDC, 4-20 mA
Input Calibration	Temperature offset ±10°F Universal offset ±10% of scale
Signal Output	Model-specific (see I/O configuration table)
Relays/tri-state	10A at 24 VAC (resistive), 1/2 hp at 120 VAC 125 VA pilot duty
Modulating	0 or 2-10 VDC, 2 kΩ minimum impedance 4-20 mA, 600Ω maximum impedance Series 90, 135Ω
Temperature Sensor	Included in all T775-A,B,L,M,P,R versions
Probe	50021579-001, 8" leads
Range	-60°F to 270°F (-51° to 132°C)
Accuracy	±1°F at 77°F
Control Type	Model-specific (see I/O configuration table)
Relay on/off	Differential control, adjustable ±1° to ±150°F
Modulating	PI or PID, with adjustable tuning Throttling range ±1° to ±150°F Derivative and integral times 0 to 3600 seconds Multiple loops depending on model
Wiring	Terminal blocks separated by function
Enclosure	Plenum rated plastic, UL94V NEMA 1, NEMA 4X versions Hinged cover with LCD window Five (1/2") knockouts on four sides
Color	Two-tone gray
Mounting	Surface screw tabs or DIN rail
Operating Temperature	-40° to 140°F (-40° to 60°C)
Operating Humidity	5% to 95% RH (non-condensing)
Dimensions	8.2"H x 4.9"W x 3"D (20.7 x 12.5 x 7.4 cm) Door opens out 4" (10.2 cm)
Weight	2.2 lb (1 Kg)
Approvals	UL Listed File #E4436, File #XAPX. E4436 cULus, CE, C-tick, FCC
Warranty	1 year

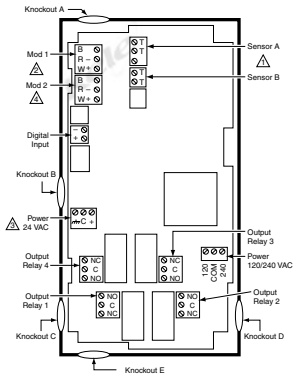
WIRING

TABLE 1. MODEL I/O CONFIGURATION

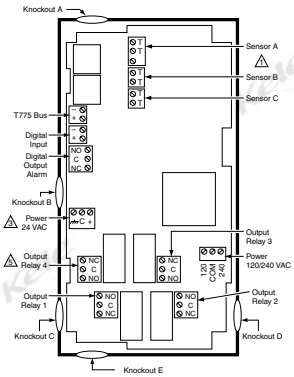
Model	Control Type	Inputs	Outputs	Control Loops	Special Feature	Enclosure	Sensor Included 50021579-001
T775A2009	2-Position	1 Temp	1 SPDT	1	Clock NSB	NEMA 1	1
T775B2032	2-Position or Floating*	2 Temp	2 SPDT	2 (1 if Floating)	Clock NSB	NEMA 1	1
T775B2040	2-Position or Floating*	2 Temp	4 SPDT	2	Clock NSB	NEMA 1	1
T775B2024	2-Position or Floating*	2 Temp	4 SPDT	2	Clock NSB	NEMA 4X	1
T775U2006	Proportional	2 Temp	2 Analog	2	Clock NSB	NEMA 1	1
T775M2048	Proportional	2 Temp	2 Analog, 2 SPDT	2	Clock NSB	NEMA 1	1
T775M2022	Proportional	2 Temp	2 Analog, 2 SPDT	2	Clock NSB	NEMA 4X	1
T775R2035	2-Position or Floating*	2 Temp	2 SPDT	1 with Reset	Clock with Reset	NEMA 1	2
T775R2043	Proportional, Reset	2 Temp	2 Analog	1 with Reset	Clock with Reset	NEMA 1	2
T775R2027	Proportional, 2-Position, Reset	2 Temp	2 Analog, 2 SPDT	1 with Reset	Clock with Reset	NEMA 1	2
T775R2001	2-Position or Floating*	2 Temp	4 SPDT	1 with Reset	Clock with Reset	NEMA 1	2
T775P2003	2-Position, Reset, BLR	3 Temp	4 SPDT, 1 ALM	1 with Reset	Staging	NEMA 1	3
T775L2007	2-Position, Reset, Sequential	2 Temp	4 SPDT	2, 1 with Reset	Multi-stage and Seq	NEMA 1	1
T775U2016	2-Position & Proportional**	1 Temp,1 Univ	2 Analog, 2 SPDT	2, 1 with Reset	RH,PSI,in W.C.	NEMA 1	None
T775S2008	2-Position	N/A	4 SPDT for sequence expansion on T775(L,P)			NEMA 1	N/A
T775R2019	Proportional, 2-Position, Reset	2 Temp	2 Analog, 4SPDT	1 with Reset	Clock with Reset	NEMA 1	2

I/O Legend	Description
2-Pos	Two-position control
Float	Floating (tri-state) control
Prop	Proportional control
Temp	Temperature input, RTD
Univ	Universal input
Reset	OSA Reset control
BLR	Boiler special
Seq	Sequencer control
ALM	Alarm relay SPDT
Staging	Boiler or pump staging
NSB	Night setback function

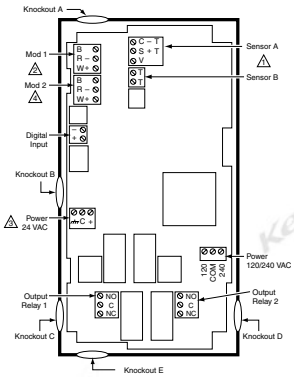
*Each Floating (tri-state) output has two SPDT relays. **Sensor B can only be used for reset.



T775A/B/M/R Series 2000 Controller



T775P Series 2000 Controller



T775U Series 2000 Controller

NOTES FOR ALL DIAGRAMS

⚠ When used for temperature or 4-20 mA sensing, sensors A and B use the two TT connections and are polarity insensitive.

⚠ For Mod 1 and Mod 2 current (mA) or voltage (VDC) output, use signal (+) and common (–). For Mod 1 and Mod 2 Series 90 output, use W, R, and B.

⚠ A separate earth ground is required for any power source (24, 120, or 240 VAC).

⚠ For Series 90 connections, you must insert a 340Ω resistor across terminals R and W. The resistor is included with the controller.

⚠ Relay 4 can be used for pump output. The pump output is always the last relay output.

ORDERING INFORMATION

MODEL	DESCRIPTION
T775A2009	Single loop SPDT controller with one RTD
T775B2016	Single loop floating or twin SPDT controller, NEMA 4
T775B2024	Two-output floating or four SPDT controller, NEMA 4, with one RTD
T775B2032	Single loop floating or two SPDT controller, with one RTD
T775B2040	Two-output floating or four SPDT controller, with one RTD
T775M2014	Two-output proportional controller with 4 SPDT NEMA 4
T775M2022	Two-output proportional and two-output SPDT controller, NEMA 4, with one RTD
T775M2030	Two-output proportional controller with 4 SPDT
T775M2048	Two-analog-output proportional controller with two SPDT outputs and one RTD
T775R2001	Two-output floating or four-output SPDT reset controller, with two RTDs
T775R2019	Two-output proportional reset controller with four SPDT outputs and two RTDs
T775R2027	Two-output proportional reset controller with two SPDT outputs and two RTDs
T775R2035	One-output floating or two-output SPDT reset controller, with two RTDs
T775R2043	Two-output proportional reset controller, with two RTDs
T775P2003	Four on/off boiler control outputs with reset and three RTDs
T775L2007	Dual loop, Four on/off sequence control outputs (1 loop with reset) and one RTD
T775U2006	Single loop, Universal input, two proportional outputs, and two SPDT outputs
T775U2016	Dual loop, Universal input, two proportional outputs, and two SPDT outputs(1 loop with reset)
T775S2008	T775(P,L), four-relay expansion module

RELATED PRODUCTS

50021579-001	Replacement temperature sensor (typically supplied with T775)
C7031D2003	5-inch immersion temperature sensor w/box
C7031J2009	12-foot averaging temperature sensor with wiring box
C7046D1008	8-inch duct temperature sensor w/box
C7130B1009	Room temperature sensor
T775-SENS-WR	Temperature sensor with water-resistant 5-foot leads
T775-SENS-WT	Temperature sensor with water-tight 6-foot leads