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 adjustable differential 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.

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

<table>
<thead>
<tr>
<th>Specification</th>
<th>T775M2078 open door</th>
<th>T775M2048 closed door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>24, 120, or 240 VAC, 50/60 Hz</td>
<td>24, 120, or 240 VAC, 50/60 Hz</td>
</tr>
<tr>
<td>Supply VA</td>
<td>8 VA maximum at 60 Hz, 10 VA maximum at 50 Hz</td>
<td>8 VA maximum at 60 Hz, 10 VA maximum at 50 Hz</td>
</tr>
<tr>
<td>Display</td>
<td>Backlit digital 2.5&quot; x 1.5&quot;, configurable °F or °C</td>
<td>Backlit digital 2.5&quot; x 1.5&quot;, configurable °F or °C</td>
</tr>
<tr>
<td>Operation</td>
<td>6-key, menu-driven, with simple programming lock</td>
<td>6-key, menu-driven, with simple programming lock</td>
</tr>
<tr>
<td>Memory</td>
<td>Program is non-volatile; time is retained for 24 hours</td>
<td>Program is non-volatile; time is retained for 24 hours</td>
</tr>
<tr>
<td>Clock</td>
<td>12 hour (AM/PM) for night setback/shutdown, daylight savings time enable/disable</td>
<td>12 hour (AM/PM) for night setback/shutdown, daylight savings time enable/disable</td>
</tr>
<tr>
<td>Scheduling</td>
<td>7-day, two events per day</td>
<td>7-day, two events per day</td>
</tr>
<tr>
<td>Setpoint</td>
<td>Model specific (see I/O configuration table)</td>
<td>Model specific (see I/O configuration table)</td>
</tr>
<tr>
<td>Temperature Humidity</td>
<td>-40° to 248°F (-40° to 120°C)</td>
<td>-40° to 248°F (-40° to 120°C)</td>
</tr>
<tr>
<td>Pressure (T775U)</td>
<td>0-100%</td>
<td>0-100%</td>
</tr>
<tr>
<td>Signal Input</td>
<td>Model specific (see I/O configuration table)</td>
<td>Model specific (see I/O configuration table)</td>
</tr>
<tr>
<td>Temperature RTD</td>
<td>1.1 kΩ at 77°F, PTC, 2.1%/°F, Platinum</td>
<td>1.1 kΩ at 77°F, PTC, 2.1%/°F, Platinum</td>
</tr>
<tr>
<td>Digital input</td>
<td>Dry contact, all models (Used for system shutdown or night setback)</td>
<td>Dry contact, all models (Used for system shutdown or night setback)</td>
</tr>
<tr>
<td>Analog (T775U)</td>
<td>0-10 VDC, 4-20 mA</td>
<td>0-10 VDC, 4-20 mA</td>
</tr>
<tr>
<td>Input Calibration</td>
<td>Temperature offset ±10°F</td>
<td>Temperature offset ±10°F</td>
</tr>
<tr>
<td>Signal Output</td>
<td>Model specific (see I/O configuration table)</td>
<td>Model specific (see I/O configuration table)</td>
</tr>
<tr>
<td>Relays/tri-state</td>
<td>10A at 24 VAC (resistive), 1/2 hp at 120 VAC, 125 VA pilot duty</td>
<td>10A at 24 VAC (resistive), 1/2 hp at 120 VAC, 125 VA pilot duty</td>
</tr>
</tbody>
</table>

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
- ±1°F at 77°F

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)
- PI or PID, with adjustable tuning
- Throttling range ±1°F to ±150°F
- Derivative and integral times 0 to 3600 seconds

Relay on/off
- Differential control, adjustable ±1°F to ±150°F

Wiring
- Terminal blocks separated by function
- 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

September 2016
WIRING

TABLE 1. MODEL I/O CONFIGURATION

<table>
<thead>
<tr>
<th>Model</th>
<th>Control Type</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Control Loops</th>
<th>Special Feature</th>
<th>Enclosure</th>
<th>Sensor Included</th>
<th>I/O Legend Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T775A2009</td>
<td>2-Position or Floating*</td>
<td>1 Temp</td>
<td>1 SPDT</td>
<td>1</td>
<td>Clock NSB</td>
<td>NEMA 1</td>
<td>1</td>
<td>2-Pos: Two-position control</td>
</tr>
<tr>
<td>T775B2032</td>
<td>2-Position or Floating*</td>
<td>2 Temp</td>
<td>2 SPDT</td>
<td>2 (1 if Floating)</td>
<td>Clock NSB</td>
<td>NEMA 4X</td>
<td>1</td>
<td>Float: Floating (tri-state) control</td>
</tr>
<tr>
<td>T775B2040</td>
<td>Proportional</td>
<td>2 Temp</td>
<td>2 Analog, 2 SPDT</td>
<td>2</td>
<td>Clock NSB</td>
<td>NEMA 1</td>
<td>1</td>
<td>Prop: Proportional control</td>
</tr>
<tr>
<td>T775B2024</td>
<td>2-Position or Floating*</td>
<td>2 Temp</td>
<td>2 SPDT</td>
<td>2</td>
<td>Clock NSB</td>
<td>NEMA 1</td>
<td>1</td>
<td>Temp: Temperature input, RTD</td>
</tr>
<tr>
<td>T775B2006</td>
<td>Proportional</td>
<td>2 Temp</td>
<td>2 Analog, 2 SPDT</td>
<td>2</td>
<td>Clock NSB</td>
<td>NEMA 1</td>
<td>1</td>
<td>Univ: Universal input</td>
</tr>
<tr>
<td>T775M2006</td>
<td>Proportional</td>
<td>2 Temp</td>
<td>2 Analog, 2 SPDT</td>
<td>2</td>
<td>Clock NSB</td>
<td>NEMA 1</td>
<td>1</td>
<td>Reset: OBA Reset control</td>
</tr>
<tr>
<td>T775R2035</td>
<td>2-Position or Floating*</td>
<td>2 Temp</td>
<td>2 SPDT</td>
<td>1 with Reset</td>
<td>Clock with Reset</td>
<td>NEMA 1</td>
<td>2</td>
<td>Seq: Sequence control</td>
</tr>
<tr>
<td>T775R2043</td>
<td>Proportional, Reset</td>
<td>2 Temp</td>
<td>2 Analog, 2 SPDT</td>
<td>1 with Reset</td>
<td>Clock with Reset</td>
<td>NEMA 1</td>
<td>2</td>
<td>Staging: Boiler or pump staging</td>
</tr>
<tr>
<td>T775R2027</td>
<td>Proportional, Reset, Reset</td>
<td>2 Temp</td>
<td>2 Analog, 2 SPDT</td>
<td>1 with Reset</td>
<td>Clock with Reset</td>
<td>NEMA 1</td>
<td>2</td>
<td>None: Night setback function</td>
</tr>
<tr>
<td>T775P2003</td>
<td>2-Position, Reset, BLR</td>
<td>3 Temp</td>
<td>4 SPDT, 1 ALM</td>
<td>1 with Reset</td>
<td>Staging</td>
<td>NEMA 1</td>
<td>1</td>
<td>None: Night setback function</td>
</tr>
<tr>
<td>T775U2016</td>
<td>2-Position &amp; Proportional**</td>
<td>1 Temp, 1 Univ</td>
<td>2 Analog, 2 SPDT</td>
<td>2, 1 with Reset</td>
<td>Multi-stage and Seq</td>
<td>NEMA 1</td>
<td>None</td>
<td>None: Night setback function</td>
</tr>
<tr>
<td>T775S2008</td>
<td>2-Position</td>
<td>N/A</td>
<td>4 SPDT for sequence expansion on T775(P,L)</td>
<td>N/A</td>
<td>NEMA 1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

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 34Ω 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, with one RTD
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 and four SPDT controller, 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
T775M2006 | 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
C7103B1009 | 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