DLC16 / T-DLC16
Digital Temperature Switch

The DLC Digital Temperature Switch is a compact, easy to program temperature controller.

- 3-digit LED screen displays probe temperature
- error or alarm messaging
- available in 120VAC or 240VAC
- non-volatile memory storage
- includes a thermistor with 10ft cable and fitting clips for panel mounting

Specifications

Probe Range: -58°F to 302°F (-50°C to 150°C)

Input: 1.5-inch (4 cm) thermistor (1000Ω @ 25°C) with 10-foot (3-meter) cable

Accuracy: ±1°

Resolution: ±1 digit

Output: 16 amp SPDT relay @ 250 VAC

Horsepower Rating: 3/4 HP

Supply Voltage: 120VAC or 240VAC

Supply Power: 4 VA (230V)

Ambient Temp: 14°F to 158°F (-10°C to 70°C)

Storage Temperature: -4°F to 176°F (-20°C to 80°C)

Front Panel Protection: IP64

Display: RED, 3-Digit LED

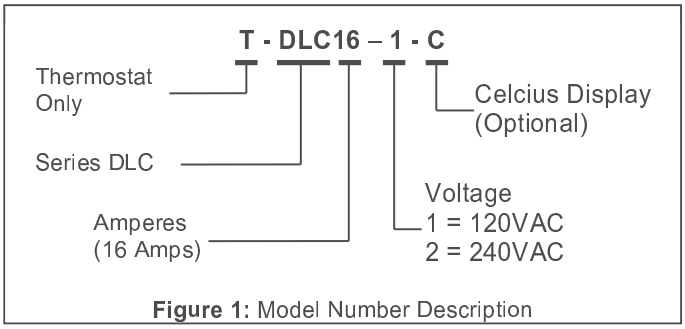


Figure 1: Model Number Description

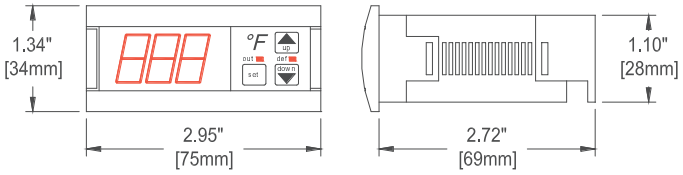
Installation

Note: *Mount DLC away from vibration, impacts, water and corrosive gases.*

1. Locate appropriate installation site.
2. Cut hole in panel 2.80 x 1.14 inches (71 x 29 mm).
3. Apply silicone (or rubber gasket) around the perimeter of the hole to prevent leakage.
4. Insert the T-DLC into hole in the panel.
5. Slide removable fitting clips onto the T-DLC from the back to secure to panel.
6. Remove the back cover to wire the T-DLC (see Figure 2, T-DLC wiring).
7. Replace cover once wiring is completed.

Note: *Probe cable length must not exceed 328 ft (100 m). Do not install probe cable near power cables.*

Dimensions



Wiring Diagram

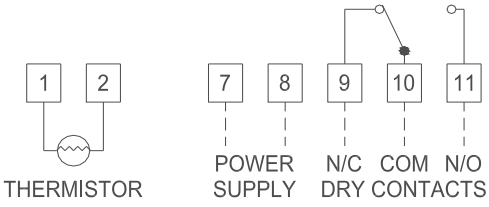


Figure 2: DLC Wiring

Parameters

	Description	Units	Range
SP	Set Point	Degrees	r1 to r2
r0	Differential or Hysteresis	Degrees	1 to 20
r1	Lower Value Set Point	Degrees	-50 to 150°
r2	Higher Value Set Point	Degrees	-50 to 302°
d0	Heating or Cooling Control	Option	Ht/Co
d2	Time for Defrosting	Minutes	0 to 59 min.
d8	Interval Time between defrosting	Hours	1 to 24 hr.
c0	Min. Stop Time for Load	Minutes	0 to 59 min.
c1	Continuous Cycle Time	Hours	0 to 24 hr.
c2	ON time of fault cycle	Minutes	0 to 999 min.
c3	OFF time of fault cycle	Minutes	0 to 999 min.
P1	Ambient Probe Adjustment	Degrees	-10 to 10
H5	Parameter Access Code	Numeric	0 to 99
t0	Max. Temp. on Display	Degrees	-50 to 302°

Parameter Descriptions

SP = Set Point - Desired Regulation Temperature.

r0 = Differential or Hysteresis.

r1 = Lower Set Point Limit.

r2 = Higher Set Point Limit.

d0 = Heating or Cooling Control - This control only does regulation cycles. Neither defrosting nor continuous cycles exist.
Heating: To choose Heating Control - Set d0=Ht
(The load is connected when TS<SP-r0.
The load is disconnected when TS>=SP.)
Cooling: To choose Cooling Control - Set d0=Co
(The load is connected when TS>=SP+r0.
The load is disconnected when TS<=SP.)
(TS = Temperature of ambient probe)

d2 = Duration of Defrosting Time (The value programmed from the factory is d2=15 minutes. [Ht-defrosting will never start, if Co=0, defrosting will never start.])

d8 = Interval time between defrosting.

c0 = Minimum time between start and stop.

c1 = Continuous cycle time.

c2 = ON time of fault cycle, when ambient probe broken

c3 = OFF time of fault cycle, when ambient probe broken

P1 = Ambient Probe Calibration. (Offset degrees to adjust ambient probe. If the probe is not placed in the exact point that is to be measured, use a standard thermometer and adjust the difference in this parameter).

H5 = Access to probe parameters. (This code is set to 0 from the factory).

t0 = Maximum temperature on display. (Temperature limit for defrosting).

Parameter Programming

Access set point (SP) without code protection

- Press SET. SP text will appear on the display.
- Press SET again. The real value is shown on the display.
- The value can be modified with the UP and DOWN arrows.
- Press SET to enter any new values.
- Press SET and DOWN at the same time to quit programming or wait one minute and the display will automatically exit programming mode.

Access to all code protected parameters

- Press SET for 8 seconds. The access code value 0 is shown on the display. (Unit comes with code set at 0 from factory*).
- With the UP and DOWN arrows, code can be set to user needs.
- Press SET to enter the code. If it is correct, the first parameter label is shown on the display (SP).
- Move to the desired parameter with the UP and DOWN keys.
- Press SET to view the value on the display.
- The value can be modified with the UP and DOWN arrows.
- Press SET to enter the value and exit to test parameter.
- Press SET and DOWN at the same time to quit programming or wait one minute and the display will automatically exit programming mode.

* *The access code can be reset to 0 by turning off the controller and turning it on again while keeping the SET key pressed.*

LED Indications

OUT This indicates the load is connected. The system waits for the programmed minimum stop time of the load.

Def This indicates defrosting is activated.

Display Messages

In normal operation, the probe temperature will be shown on the display. In case of alarm or error, the following messages will be shown:

- **ER** = Memory Error
- **--/---** = Short-Circuit Probe Error
- **oo/ooo** = Open Probe Error

Maintenance

After final installation of the DLC Series Digital Temperature Switch, no routine maintenance or calibration is required. A periodic check of temperature accuracy is recommended. If the control is not reading accurately but the error is linear, use the ambient probe adjustment parameter (P1) to compensate for the difference.