DIGITEN

Thermostat Manual
DTC-310
DTC-315

Manual Index

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The Thermostat is simple-stage, electronic temperature controller. The large, lighted LCD screen display is easy to read. The case is designed with fireproof ABS material for human engineering. Temperature sensor is waterproof with high quality, high-accuracy.

Features

● **Waterproof level: IP65**
The body and sensor are waterproof, can be used outdoors.

● **Large LCD screen**
Display the sensed temperature, setting temperature, and custom icons on the display indicate working mode.

● **Support reading with Centigrade or Fahrenheit unit;**

● **Easy to use and program**
Only 2-steps setting for your application, and plug and play design.

● **With a temperature correction function**
Allow user to adjust measuring accuracy base to on different probe, etc.

● **Delay starting protection**
Protect refrigerating compressor lifetime, avoid compressor to compressor start frequently.

● **High and low temperature alarms are available;**

● **Over-temperature and sensor fault alarm**

Technical Specifications

|	
Temperature Control Range	-40~120°C, -40~248°F
Temperature Resolution	0.1°C, 0.1°F
Temperature Accuracy	±1°C, ±1°F
Temperature Control Mode	Heating and Cooling
Input Power	100~240VAC, 50/60Hz
Temperature Control Output	Max.10A/15A, 100-240VAC
Maximum output load	DTC-310, 1100W@110V, 2200W@220V; DTC-315, 1650W@110V, 3300W@220V
Buzzer Alarm	High and Low Temperature Alarm
Sensor Type	Waterproof NTC sensor (Including)
Sensor Length	2m, 6ft
Relay Contact Capacity	Heating(10A, 100-240VAC) Cooling(15A, 100-240VAC)
Input Power Cable Length	150 cm/5ft
Output Power Cable Length	18cm/7"

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Panel Instructions
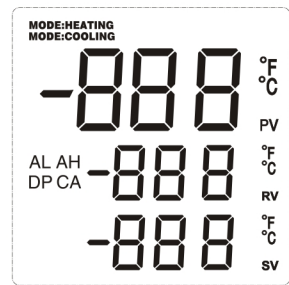
1. PV: Current Temperature.
2. RV: Run Temperature
3. SV: Stop Temperature
4. AH: High Temperature Alarm
5. AL: Low Temperature Alarm
6. DP: Time of Compressor Delay Starting
7. CA: Temperature Calibration
8. Mode: Cooling: Working Mode
9. Mode: Heating: Working Mode

View Setting Parameters

When the controller is working normally, short press SET and you can look at the parameter values in order.
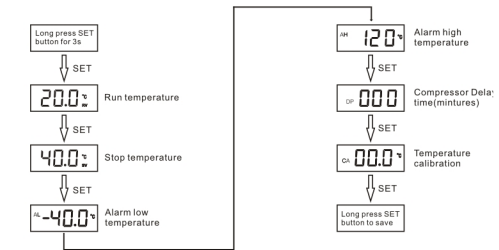

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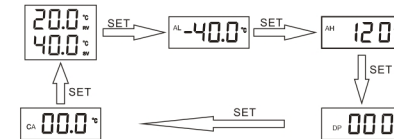
Setting Instructions

How to change temperature unit

To convert to Fahrenheit unit, press the ⋀ and ⋁ buttons simultaneously. Press them again to return to Celsius unit.

Notice: The default unit is celsius. When temperature unit has been changed, all the setting value will be recovered to factory settings.

Setup Flow Chart

Setting the RUN temperature(RV) and STOP temperature(SV)

1. Long press the SET button until RV value " 20.0: " flashing.
2. Press ⋀ and ⋁ to adjust the temperature value.
3. Press SET button to set SV " 40.0: ".
4. Long press SET button to save and exit.

Note: If no entries are made for 30 seconds while programming is in progress, the control reverts to the normal temperature display.

Setting Other Functions

To set Low temperature Alarm(AL), High temperature Alarm(AH), Calibration(CA), Compressor Delay Starting(DP), use the method illustrated

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and outlined below.
1. Long press the SET button until " ˚-닌ᒐᏆᵒ " flashing.
2. Press ▲ and ▼ to adjust the temperature value.
3. Press SET button to set next function.
4. Long press SET button to save and exit.

For example
User want to start cooling equipment when PV=28℃, and stop cooling equipment when PV=22℃, DP=3 minutes.
1. Long press the SET button until " 근ᎧᏆᒐ " flashing.
2. Press ▲ and ▼ to change the run temperature (RV) to 28℃.
3. Press SET button to set " 닌ᒐᏆᒐ " stop temperature (SV).
4. Press ▲ and ▼ to change the SV to 22℃.
6. Long press SET button to save and exit.
7. Connect the cooling equipment to the outlet.
How to restore default settings
Keep pressing SET key until connect the power to this device, controller will restore factory setting after BI-BI-BI sound.

Function range and setting

CODE	Function	Setting Range	Default Setting
RV	Run Temperature Value	-40~120℃	20℃
		-40~248°F	68°F
SV	Stop Temperature Value	-40~120℃	40℃
		-40~248°F	104°F
AH	High Temperature Alarm	-40~120℃	120℃
		-40~248°F	248°F
AL	Low Temperature Alarm	-40~120℃	-40℃
		-40~248°F	-40°F
DP	Time of Compressor Delay Starting	0~10minutes	0
CA	Temperature Calibration	-15~15℃	0℃
		-15~15°F	0°F

Function Introduction
1.Cooling Mode
Set RV(RUN temperature) > SV(STOP temperature), the temperature controller enter cooling mode. The LCD will display **MODE:COOLING** ,
When PV(measuring temperature) is higher than RV, the cooling equipment starts working, and run LED will be turned on. When PV(measuring temperature) reaches to SV(STOP temperature), the cooling equipment stop working, and stop LED will be turned on.
Note: When run LED is flashing, it means the cooling equipment enter compressor delay protection function.

2.Heating Mode
Set RV(RUN temperature) < SV(STOP temperature), the temperature controller enter cooling mode. The LCD will display **MODE:HEATING** ,
When PV(measuring temperature) is lower than RV, the heating equipment starts working, and run LED will be turned on. When PV(measuring temperature) reaches to SV(STOP temperature), the heating equipment stop working, and stop LED will be turned on.

3.High/Low Temperature Alarm (AH/AL)
When measuring temperature (PV) ≥ high temperature alarm value (AH), high temperature alarm will be triggered, buzzer will alarm with tone "bi-bi-Biii" , press any key to cancel the alarm sound, if user want to close alarm, please reset the AH value or wait until the PV is lower than AH.
When measuring temperature (PV) ≤ low temperature alarm value (AL), low temperature alarm will be triggered, buzzer will alarm with tone "bi-bi-Biii" , press any key to cancel the alarm sound, if user want to close alarm, please reset the AL value or wait until the PV is more than AL.

4.Time of Compressor Delay Starting (DP)
Under refrigeration mode, after power on, if the measuring temperature (PV) is higher or equal to Run Temperature (RV), the cooling equipment won't start refrigeration immediately, but it will wait for a delay time(DP) to work.
When the time interval between two refrigeration operations is larger than

preset delay time, the equipment will start refrigeration immediately; when the time interval between two refrigeration operations is less than preset delay time, the equipment won't start refrigeration until achieve the preset delay time.
Delay time will be recorded at the moment that refrigeration stops.

5.Temperature Calibration (CA)
When there is deviation between current temperature and actual temperature, use temperature calibration function to correct the current temperature and actual temperature. Corrected Temperature = Temperature (before Calibration) +Corrected Value (corrected value could be positive value, 0 or negative value).

LCD Backlight Control
Press ▲ and SET buttons simultaneously about 3 seconds until the symbol ☼ disappears, the LCD light will shut off automatically after 30 seconds.
Press ▲ and SET buttons simultaneously about 3 seconds until the LCD appears ☼ , the LCD will be stay on.

Application
The thermostat can be used to control a wide variety of dual-stage refrigeration and heating, or HVAC equipment. Typical applications include:
●Retail store display freezers and coolers
●Supermarket display cases for product/meats
●Retail store walk-in freezers and coolers
●Boiler operating control
●Condenser fan cycling or staging
●Cooling tower pump and fan control
●Space and return air temperature control
●Aquarium water temperature
●BBQ
●Over temperature control/protection

Troubleshooting
If you have a problem with thermostat, there's usually a quick and simple solution.

Green LED flash when power on
It is a normal phenomenon, Delay Starting Protection function for Refrigerating Compressor is working. you could enter Setup Mode directly, or wait 3 minutes(base on DP setting value) until it doesn't flash green light before setting the temperature controller.

Err Alarm
When temperature sensor is in short-circuited or open-circuited, the controller will prompt sensor fault mode, and the buzzer will alarm, and LED displays Err. Buzzer alarm could be dismissed by pressing any key. After faults solved, the system will return to normal working mode. So make sure that the sensor is plugged into the hole fully, if it still displays Err, you can change another sensor.

HL Alarm
When current temperature exceeds the measuring range (less than -40°C /-40° F or higher than 120 °C/248 ° F), the controller will prompt over-temperature alarm mode, and cancel all the actions. The buzzer will alarm, LED displays HL. Buzzer alarm could be dismissed by pressing any key. When temperature returns to measuring range, the system will return to normal working status.

Heating and refrigeration equipment don't work
1.Please make sure the setting value is correct. If thermostat works fine, the green LED(RUN) is on.
2.Please check if the loading is contacted reversely to heating or cooling outlet.
If thermostat does not operate properly after trying the troubleshooting steps, please send your questions to our email: service@digit-en.com.

WARRANTY
The DIGITEN products are guaranteed to the original owner for one year against defects in workmanship and materials. Please contact us:
service@digit-en.com
www.digit-en.com/support

⚠ WARNING
❊ Do Not Overload
This unit works with load up to 10A(DTC-310) / 15A(DTC-315). If load is larger than rated value, it would become very hot even burn the thermostat. That is very dangerous. It is best that the load is less than or equal to 7A(DTC-310) / 12A(DTC-315), if you require the temperature controller to work stably for a long term.
❊ The probe and body are waterproof, but don't use underwater, and have to vertical install and use.