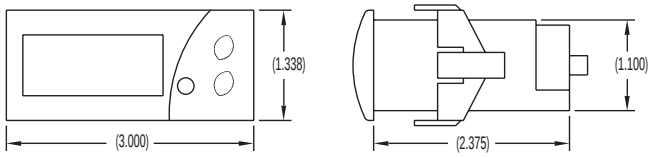
Series TS2- Digital Temperature Switch

Specifications - Installation and Operating Instructions





DESCRIPTION

Monitor and control temperature for heating and cooling applications with the Series TS2 Digital Temperature Switch. The Series TS2 offers twelve programmable functions to customize the unit to fit application requirements. Use the 15(5) Amp SPDT relay output to drive a motor, compressor, or fan. Designed with the OEM in mind, the TS2 offers the ability to configure multiple units with the touch of a button.

Programming multiple units is quick and easy. Simply program one switch with the desired parameter settings and connect the configuration key (sold separately) to the back of the unit. Press the button on the configuration key and download the parameter settings. Connect the key to the other switches to upload the stored settings with the push of a button.

The TS2 features set point adjustments, static defrost timing, compressor mean time, hysteresis, and ambient probe adjustment. Security protection is offered using a password code. The Series TS2 Digital Temperature Switches are designed to operate with PTC (1000Ω @ 25°C) probes sold separately.

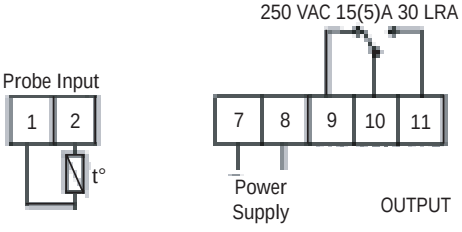
INSTALLATION

The thermostat must be installed by authorized professionals. It should be located in a place free of vibrations, impacts, water and corrosive gases.

A hole measuring 71 x 29 mm must be cut in the panel where the thermostat is to be fitted (apply silicone to make it leaktight). Then, the fixing cups must be fitted, sliding them onto the thermostat until secure. Do not force tightening of the screw if the U-brackets are used. The connections must be covered with the rear cover for this.

WIRING INSTRUCTIONS

Avoid installing the probe's cables in proximity with any power cable. If the length of the probe cables measures more than 100 meters, a recalibration adjustment must be made (parameter P1).



SPECIFICATIONS

Probe Range: -58 to 302°F (-50° to 150°C).
Input: PTC thermistor 1000Ω @ 25°C.
Output: 15A PTC SPDT relay @ 250 VAC resistive, 5A inductive.
Horsepower Rating (HP): 3/4 HP.
Control Type: ON/OFF.
Power Requirements: 110 VAC.
Accuracy: ±1°C.
Display: 3-digit, Red, 1/2″ digits.
Resolution: ±1 digit.
Memory Backup: Nonvolatile memory.
Ambient Operating Temperature: 14 to 158°F (-10 to 70°C).
Storage Temperature: -4 to 176°F (-20° to 80°C).
Weight: 2.3 oz (65 g).
Front Panel Rating: IP64.
Agency Approvals: CE, URc, UR.

FRONT OPERATION

PUSH BUTTONS



Pushing SET once gives access to the SP. Pushing for 8 seconds gives way to the requested code. After entering the correct code, all parameters are accessible. This button alternates between text parameters and their value. It validates the modified parameters. When pressed with DOWN, it exits parameter programming.



Pressing this arrow allows the user to go to the next parameter or increase the value viewed on the display. When pressed for 8 seconds, it activates or deactivates defrosting.



Pressing this arrow allows the user to go to the previous parameter or decreases the value viewed on the display. When pressed for 8 seconds, it activates or deactivates the continuous cooling cycle. When pressed simultaneously with SET, it exits the programming mode.

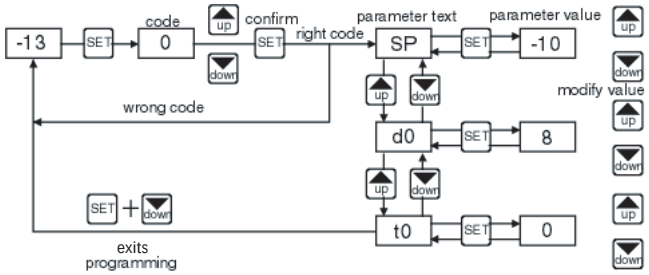
PROGRAMMING PARAMETERS

Access only to Set Point SP (without code protection):
- Press and release SET. SP text appears on the display.
- Press SET again. The real value is shown on the display.
- Modify the value using the UP and DOWN keys.
- Press SET and DOWN to quit programming, or wait 1 minute for

the TIMEOUT.
Access to all parameters (code protected):
•Press SET for 8 seconds. The access code value 00 is shown on the display.
•Using the UP and DOWN buttons, set the code (factory-set code is 00).
•Press SET to enter the code. If it is correct, the first parameter label will be shown on the display (SP).
•Move to the desired parameter with the UP and DOWN keys.
•Press SET to see the value.
•Modify the value with the UP and DOWN keys.
•Press SET to enter it, and exit to text parameter.
•Press SET and DOWN to quit programming, or wait 1 minute for the TIMEOUT.

SETTING THE KEYBOARD CODE TO ZERO

The keyboard code can be set to zero by holding the SET key and



turning the controller off then on again.

LED INDICATIONS

Out: This indicates that the compressor is connected. It waits the programmed minimum stop time of the compressor.
Def: This indicates that defrosting is activated.

MESSAGES DISPLAY

In normal operation, the probe temperature will be shown. In case of alarm or error, the following messages will be shown:
• Er- Memory error.
• -- Short-circuited probe error.
• oo- Open probe error.

	Description	Units	Range
SP	Set point	degrees	r1 to r2
r0	Differential or hysteresis	degrees	1 to 20°
r1	Lower value for set point	degrees	-50 to 150°C -50 to 302°F
r2	Higher value for set point	degrees	-50 to 150°C -50 to 302°F
d0	Heating or cooling control	option	Ht/Co
d2	Time for defrosting	minutes	0 to 59’
d8	Interval time between defrosting	hours	0 to 24
c0	Minimum stop time for compressor	minutes	0 to 59’
c1	Continuous cycle time	hours	0 to 24
P1	Ambient probe adjustment	degrees	-10° to 10°
H5	Parameter access code	numeric	0 to 99
t0	Maximum temperature on display	degrees	-50 to 150°C -50 to 302°F

PARAMETERS

PARAMETER DESCRIPTIONS

SP = Set Point. Temperature wished to regulate the machine. Can vary from r1 to r2.
r0 = Differential. Heating: If temperature is ≥ Set then out OFF. If temperature is ≤ Set then out OFF. Cooling: if temperature is > Set + r0 then out ON. If temperature is ≤ Set then out OFF.
r1 = Lower Set Point Limit
r2 = Higher Set Point Limit
d0 = Heat or Cooling Control. Ht = heating control, Co = cooling control.
d2 = Defrosting Time Remaining, in minutes. If d2 = 0, defrosting will not start.
d8 = Interval Between Two Defrostings, in hours.
c0 = Minimum time for compressor to be OFF. Minimum time from when the compressor stops till it connects again.
c1 = Continuous Cycle Time. The remaining time for a continuous cold cycle.
P1 = Ambient Probe Calibration. Offsets degrees to adjust the ambient probe.
H5 = Access Code to Parameters. Factory-set as 00.
t0 = Temperature Display Limit. Maximum temperature shown on the display, although the real temperature can be greater.

OPERATION IN CASE OF ERROR

If the probe or thermostat memory should fail, the compressor will be connected for 5 minutes ON then 5 minutes OFF.

MAINTENANCE

CLEANING

Clean the surface of the display controller with a soft, damp cloth. Never use abrasive detergents, petrol, alcohol or solvents.

REPAIRS

After final installation of the TS Series Digital Temperature Switch, no routine maintenance is required. A periodic check of system calibration is recommended. The devices are not field repairable and should be returned to the factory if recalibration or other service is required. After first obtaining a Returned Goods Authorization (RGA) number, send the material, freight prepaid, to the following address. Please include a clear description of the problem plus any application information available.

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