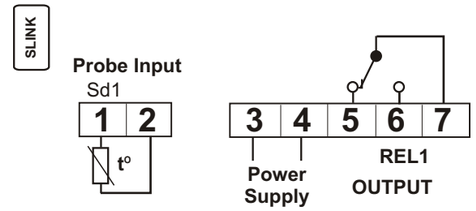
ST11 TOUCH Temperature Digital Controller

Specification and Operating Instructions

CE

Wiring Diagram



Description

The KLT11 touch is designed for many heating and cooling applications. It has an input for temperature probe type PTC or NTC (selectable by parameter). The probe temperature is displayed on the bright 3-digit display. The user is able to program 23 different parameters including set point, hysteresis, cycle time and ambient probe adjustment using the touch keypad. The KLKey input allows an easy programming of the parameters. The unit features error warning, password protection and temperature alarms. Select between red, green, blue or white display color, temperature display in ºC or ºF and 115Vac, 230Vac, 24Vac/dc or 12Vac/dc power supplies.

Model references

The model reference is given by: ST11 - DXY
Where each sufix can take the following values:

X	Display Color	R=Red, G=Green, B=Blue, W=White
Y	Supply Voltage	110=115Vac, 230=230Vac 24=24Vac/dc, 12=12Vac/dc

Installation

NOTE: Unit must be mounted away from vibration, impacts, water and corrosive gases.
• Cut hole in panel 71 x 29 mm (2.80 x 1.14 inches)
• Apply silicone (or rubber gasket) around the perimeter of the hole to prevent leakage.
• Insert unit into hole of panel.
• Slide removable fitting clips onto unit from the back until secure to panel.
• Wiring diagram is displayed on the top of the unit
NOTE: DO NOT INSTALL PROBE CABLE NEAR POWER CABLES.

Technical Data

Supply voltages
115Vac±10%, 230Vac±10%, 24Vac/dc±10%, 12Vac/dc±10%

Supply powers
4VA (230V/115V) 1,5VA(24V /12V)

Storage temperature
-20ºC to 80ºC (-4 to 176ºF)

Operating temperature
0ºC to 55ºC (32 to 131ºF)

Measurement range
PTC -50ºC to 150ºC (-58 to 302ºF)
NTC -50ºC to 110ºC (-58 to 230ºF)

Accuracy
Better than 1% of full scale

Resolution
0,1º (3 digits)

Display
3-digit and sign (red, green, blue or white)

Probe Input (Selectable by parameter)
PTC1000 probes (25ºC - 1000 Ohm) / NTC

KLKey Input
For an quick programming of all parameters

Output
SPDT Relay Resistive load 16A
1HP 240Vac -- 10FLA, 60LRA 240Vac

Internal buzzer

Dimensions
79 x 36,5 x 62 mm (3.11 x 1.44 x 2.44 inch)

IP Protection Front IP65

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List of parameters

	Description	Units	Range
SP	Set Point	Degrees	r1 to r2
r0	Differential or hysteresis	Degrees	1 to 20
r1	Lower value for SP	Degrees	-58 to r2
r2	Higher value for SP	Degrees	r1 to 302
d0	Cooling or heating control	Option	Ht / Co
d2	Defrosting duration	Minutes	0 to 59
d8	Defrosting interval time	Hours	0 to 24
c0	Minimum stopping time	Minutes	0 to 59
c1	Cool cycle duration	Hours	0 to 24
c2	ON time of fault cycle	Minutes	0 to 999
c3	OFF time of fault cycle	Minutes	0 to 999
A0	Alarm differential or hysteresis	Degrees	1 to 20
A1	Maximum alarm temperature	Degrees	1 to 90
A2	Minimum alarm temperature	Degrees	1 to 90
A7	Alarm time validation	Minutes	0 to 999
P0	Temperature scale	Option	ºC / ºF
P1	Ambient probe adjustment	Degrees	-10 to 10
P4	Decimal point	Option	no / yes
H0	Factory Settings	Option	0
H4	Address	Numeric	0 to 999
H5	Access code to parameters	Numeric	0 to 255
H6	Probe type	Option	Ptc / ntc
t0	Maximum displayed temp.	Degrees	-58 to 302

Parameter descriptions

SP = Set point. Temperature we wish to regulate the machine (variable from r1 to r2)

r0 = Differential or hysteresis.

r1 = Lower value for SP

r2 = Higher value for SP

d0 = Cooling or heating control

If d0 = Ht and TS is the temperature of ambient probe:
If TS >= SP the load is disconnected
If TS <= SP-r0 the load is connected

Sif d0=Co then:
If TS <= SP the load is disconnected
If TS >= SP+r0 the load is connected

d2 = Defrosting duration (if d2=0 no defrosting is performed)

d8 = A defrosting cycle is performed every d8 hours (if d8=0 no periodic defrosting is performed)

c0 = Minimum stopping time of the load

c1 =Cool cycle duration

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

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

Parameter descriptions (Continuation)

A0 = Alarm differential or hysteresis

A1 = High Alarm ON at TS >= Set+A1
High Alarm OFF at TS <= Set+A1-A0

A2 = Low Alarm ON at TS <= Set-A2
Low Alarm OFF at TS >= Set-A2+A0

A7 = Time from when the alarm condition occurs, until it is activated

P0= Temperature scale. Selection between ºC or ºF.

P1= Ambient probe adjustment. If the probe is not placed in the exact point to control use a standard thermometer to offset the measured temperature.

P4= Decimal point only in visualization of the probe. The parameters are always decimal.

H0 = Factory Settings. Record Factory Configuration.

H4 = Address to network the device

H5 = Access code to parameters (it is set to 00 from factory)

H6 = Probe Model Ptc or Ntc

t0 =Maximum temperature displayed during defrosting and during the next hour to defrosting.

Parameter programming

Set Point (SP) is the only parameter the user can access 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 code 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.
• Repeat until all necessary parameters are modified.
•Press SET and DOWN at the same time to quit programming or wait one minute and the display will automatically exit programming mode.

Setting keyboard code to zero

The keyboard code can be programmed to zero within 1 minute after turning on the controller.
• Press SET for 8 seconds. Value 0 appears blinking.
• Set the code to 123 with UP and DOWN.
• Press SET to confirm the code. New code is 0.

Record a factory configuration

Access to parameter H0 as explained in Parameter programming and choose configuration 0. Press Set for 2 seconds. The thermostat will be reset and factory values will be loaded.

Activating/deactivating defrosting

Holding the AUX key pressed for 2 seconds the defrosting is activated. Repeating this operation the defrosting is stopped. If a cool cycle is activated the defrosting is disabled

Activating/deactivating cool cycle

Holding the DOWN arrow pressed for 8 seconds a continuous cool cycle is activated. Repeating this operation the cool cycle is stopped. If defrosting is activated cool cycle is disabled.
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Default working

In case of probe error, the control performs a continuous regulation, c2 minutes load connected c3 minutes load disconnected.
In case of memory error, the control performs a continuous regulation, 5 minutes load connected 5 minutes load disconnected.

Led indication and display messages

The led ❄ indicates if the load is connected or not.

If a continuos cool cycle is being performed the led flashes (90% ON 10% OFF). If the control is waiting the stopping time c0 to start a cool cycle the led flashes (10% ON 90% OFF).

The led 🔥 indicates if the control is performing defrosting.

The led ((•)) indicates if an alarm is active or not. If the alarm is validated but the alarm condition persists the led flashes.

In normal operation, the probe temperature will be shown on the display.

In case of alarm or error, the following messages can be shown:

• ALH = High temperature alarm
• ALL = Low temperature alarm
• *Er* = Memory Error
• *oo* = Open Probe Error
• -- = Short Circuit Probe Error

Buzzer operation

If there is a memory error, probe error or temperature alarm (high or low) internal buzzer will sound.
The buzzer can be muted pressing the DOWN key.

Alarm validation

When there is an alarm it can be validated pressing the DOWN key. Then the message (ALH or ALL) will not be shown and the led ((•)) will flash while the alarm condition persists.

Maintenance, cleaning and repair

After final installation of the unit, no routine maintenance is required.
Clean the surface of the display controller with a soft and damp cloth. Never use abrasive detergents, petrol, alcohol or solvents.
All repairs must be made by authorised personnel.

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