



1-STAGE DIGITAL CONTROLLER

DTR11N7

GENERAL FEATURES

Temperature visualization and regulation with NTC10-02 sensors in industrial heating and cooling applications.

TYPE	RANGE °C	MAIN SUPPLY	OUTPUT	DIFFERENTIAL K	RESOLUTION °C	INPUT
DTR11N7	-40...+105	230 Vac	10 A/250 Vac	0,1...99	0.1 - 1 °C	NTC10-02

TECHNICAL FEATURES

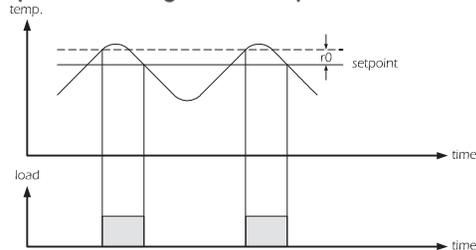
Power supply: 230 Vac, 50/60 Hz, 3 VA
Digital outputs: 1 SPDT relay 10 A 250 Vac resistive load
Measuring range: -40...+105 °C NTC sensors
Resolution: 0,1 °C/1 °C/1 °F
Working temperature: 0...+55 °C (10...90% r.h. non condensing)
Measure inputs: 1 NTC sensor
Housing: grey fire-proof
Dimensions: 75 x 33 x 65 mm
Mounting hole: 71 x 29 mm
Frontal protection: IP65
Connections: screw terminal blocks

REGULATION OPERATING

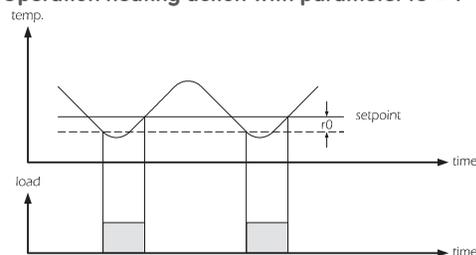
Preliminary information

The operation mainly depends on parameter r5.

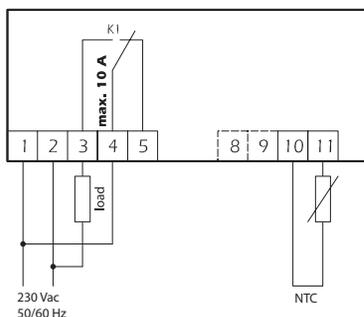
Operation cooling action with parameter r5 = 0



Operation heating action with parameter r5 = 1



ELECTRICAL CONNECTION

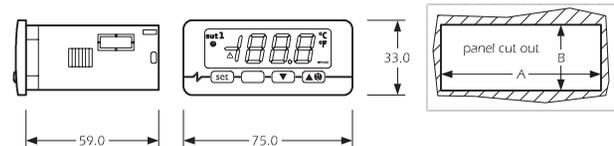


ADDITIONAL INFORMATION FOR ELECTRICAL CONNECTION

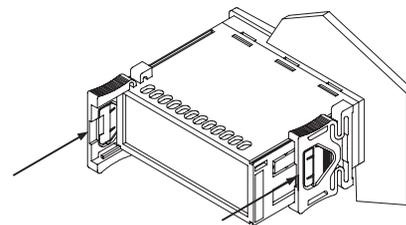
- do not operate on the terminal blocks with electrical or pneumatic screwdrivers
- if the instrument has been moved from a cold location to a warm one, the humidity could condense inside; wait about an hour before supplying it
- test the working power supply voltage, working electrical frequency and working electrical power of the instrument; they must correspond with the local power supply
- disconnect the local power supply before servicing the instrument
- do not use the instrument as safety device

DIMENSIONS AND INSTALLATION

Dimension of model:



DIMENSION	
A	71.0
B	29.0



INSTALLATION

Panel mounting, with click brackets.

ADDITIONAL INFORMATION FOR INSTALLATION

- the panel thickness must not be higher than 8.0 mm (0.314 in)
- working conditions (working temperature, humidity, etc.) must be between the limits indicated on the technical data
- do not install the instrument close to heating sources (heaters, hot air ducts, etc.), devices provided with big magnetos (big speakers, etc.), locations subject to direct sunlight, rain, humidity, dust, mechanical vibrations or bumps
- according to the safety legislation, the protection against electrical parts must be ensured by a correct installation of the instrument; the parts that ensure the protection must be installed so that you can not remove them without using a tool.



USER INTERFACE

The display

If the instrument is turned on, during the normal operation the display shows the quantity you have set with parameter P5:

- if P5 = 0, the display shows the measured temperature
- if P5 = 1, the display shows the working setpoint.

Showing the temperature

- make sure the keyboard is not locked and no procedure is running
- press for 2 s: the display will show "Pb1"
- press

To quit the procedure:

- press or do not operate for 60 s
- press or as long as the display shows the quantity you have set with parameter P5 or do not operate for 60 s.

Activating the defrost manually

- make sure the keyboard is not locked and no procedure is running
- press for 4 s.

If parameter r5 has value 1 (heating action), the defrost functions will not be enabled.

Locking/unlocking the keyboard

To lock the keyboard:

- make sure no procedure is running
- press and for 2 s: the display will show "Loc" for 1 s.

If the keyboard is locked, you will not be allowed to:

- activate the defrost manually
- modify the working setpoint

These operations provoke the visualization of the label "Loc" for 1 s.

To unlock the keyboard:

- press and for 2 s: the display shows "UnL" for 1 s.

SETTINGS

Setting the working setpoint

- make sure the keyboard is not locked and no procedure is running
- press the LED **out 1** flashes
- press or in 15 s for setting the desired set point (also look at parameters r1, r2 and r3)
- press or do not operate for 15 s.

You also can modify the working setpoint through parameter SP.

Setting configuration parameters

To access the procedure:

- make sure no procedure is running
- press and at the same time (4 s) until the display shows "PA"
- press
- press or in 15 s and set "-19"
- press
- press and at the same time (4 s) until the display shows "SP".

To select a parameter:

- press or

To modify another parameter:

- press
- press or
- press

To quit the procedure:

- press and for 4 s or do not operate for 60 s.

Switch off/on the power supply of the instrument after parameters modification.

Restoring the default value of configuration parameters

- make sure no procedure is running
- press and at the same time (4 s) until the display shows "PA"
- press
- press or and set "743"
- press
- press and at the same time (4 s) until the display shows "dEF"
- press
- press or and set "149"
- press or do not operate for 15 s: the display shows "dEF" flashing for 4 s, then the instrument quits the procedure
- switch off/on the power supply of the instrument.

SIGNALS

LED	MEANING
out 1	LED load if it is on, the load is activated if it is flashing: •the modification of the working setpoint is being done •a load protection is in progress (parameters C1 and C2)
	LED defrost if it is on, the defrost is in progress
	LED alarm if it is on, an alarm is in progress
°C	LED degree Celsius if it is on, temperature unit is degree Celsius (parameter P2)
°F	LED degree Fahrenheit if it is on, temperature unit is degree Fahrenheit (parameter P2)

CODE	MEANING
Loc	the keyboard and/or the working setpoint are locked (parameter r3);

ALARMS

CODE	MEANING
AL1	First temperature alarm Solutions: •check the measured temperature •look at parameters A1 and A3 Effects: •no effect
AL2	Second temperature alarm Solutions: •check the measured temperature •look at parameters A5 and A7 Effects: •no effect

When alarm conditions disappears, the instrument restores the normal operation.



INTERNAL DIAGNOSIS

CODE	MEANING
Pr1	Probe error Solutions: •look at parameter P0 •check the integrity of the probe •check the connection instrument-probe •check the measured temperature Effects: •the load activity will depend on parameters C4 and C5

When alarm conditions disappears, the instrument restores the normal operation.

WORKING SETPOINTS AND CONFIGURATION PARAMETERS

Working setpoints

PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX
SP	working setpoint [°C/°F] (1)	0.0	r1	r2

Measure inputs

PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX
CA1	room probe offset [°C/°F] (1)	0.0	-25.0	25.0
P0	type of sensor 0 = PTC 1 = NTC	1	0	1
P1	decimal point for degree Celsius 1 = YES	1	0	1
P2	temperature unit (2) 0 = °C 1 = °F	0	0	1
P5	quantity to show during normal operation 0 = room temperature 1 = working setpoint	0	0	1

Main regulator

PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX
r0	working setpoint differential [°C/°F] (1)	2.0	0.1	99.0
r1	minimum working setpoint [°C/°F] (1)	0.0	-99.0	r2
r2	maximum working setpoint [°C/°F] (1)	150.0	r1	(3)
r3	locking the working setpoint modification 1 = setpoint blocked 0 = setpoint adjustable	0	0	1
r5	cooling or heating action 0 = cooling	1	0	1

Load protections

PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX
C1	minimum time between two load activations; and load delay since the end of the probe error [min] (4)	0	0	240
C2	minimum time the load remains turned off; and load delay since you turn on the instrument [min]	0	0	240
C3	minimum time the load remains turned on [s]	0	0	240
C4	time the load remains turned off during the room probe error; also look at C5 [min]	10	0	240
C5	time the load remains turned on during the room probe error; also look at C4 [min]	10	0	240



Defrost (5)

PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX
d0	defrost interval (6) 0 = the defrost at intervals will never be activated [h]	8	0	99
d3	defrost duration 0 = the defrost will never be activated [min]	0	0	99
d4	defrost when you turn on the instrument 1 = YES	0	0	1
d5	defrost delay when you turn on the instrument (only if d4 = 1) [min]	0	0	99
d6	temperature visualized during defrost: 0 = room temperature 1 = if temperature is below "working setpoint + r0" at the beginning of defrost cycle, the display indicates room temperature up to "working setpoint + r0", then the display is blocked until defrost cycles ends and the temperature drops below "working setpoint + r0". If temperature is upper than "working setpoint + r0" at the beginning of defrost cycle, the display is blocked indicating the current room temperature up to the end of defrost cycle, and the display is unblocked when temperature drops below temperature in which it was blocked. (7)	1	0	1

Temperature alarms

PARAMETERS	DESCRIPTION	DEFAULT	MIN	MAX
A1	temperature in which the first temperature alarm is activated; also look at A3 [°C/°F] (1) (8)	0.0	-99.0	(3)
A2	first temperature alarm delay [min] (9)	0	0	240
A3	type of first temperature alarm 0 = alarm not enabled 1 = absolute lower alarm 2 = absolute upper alarm 3 = lower alarm relative to the working setpoint ("working setpoint - A1"; consider A1 without sign) 4 = upper alarm relative to the working setpoint ("working setpoint + A1"; consider A1 without sign)	0	0	4
A4	temperature alarms delay since the working setpoint modification [min] (9)	0	0	240
A5	temperature in which the second temperature alarm is activated; also look at A7 [°C/°F] (1) (8)	0.0	-99.0	(3)
A6	second temperature alarm delay [min] (9)	0	0	240
A7	kind of second temperature alarm 0 = alarm not enabled 1 = absolute lower alarm 2 = absolute upper alarm 3 = lower alarm relative to the working setpoint ("working setpoint - A5"; consider A5 without sign) 4 = upper alarm relative to the working setpoint ("working setpoint + A5"; consider A5 without sign)	0	0	4

(1) measuring unit depends on parameter P2

(2) set the parameters related to the regulators appropriately after the modification of the parameter P2

(3) the value depends on parameter P2 (150.0 °C or 300 °F)

(4) however parameter C1 has value 0, the delay since the end of the room probe error is 2 min

(5) if parameter r5 has value 1 (heating action), the defrost functions is not enabled

(6) the instrument stores the count of the defrost interval every 30 min; the modification of parameter d0 has effect since the end of the previous defrost interval or since manually defrost activation

(7) the display restores the normal operation as soon as the defrost ends and the room temperature falls below the one that has locked the display (or if a temperature alarm arises)

(8) the differential of the parameter is 2,0 °C/4 °F

(9) during the defrost the temperature alarms are not enabled, temperature alarms that occur during defrost are not considered.

