



## CTH 46 - CTD 43 / 46 CTD 43 Part number 89421102



- CTH 46**
- Heating / cooling function
  - Measurement and setpoint display
- CTD 43**
- Heating or cooling function
  - Measurement display
  - Measurement deviation display-Setpoint via LED
  - 1 configurable alarm
- CTD 46**
- Heating or cooling function
  - Measurement and setpoint display
  - 1 configurable alarm

### Part numbers

	Type	Output	Supply voltage
89 421 102	CTD 43	Relay	24 V ACDC

### Specifications

Supply	100 to 240 VAC
Frequency (Hz)	50 / 60
Tolerance	-15 % +10 % Un
Consumption	5 VA
Display CTD 43	Measurement or setpoint : red LEDs, 3-digit, 7-segment, height 10 mm
Display CTH 47 / CTD 46	Measurement : red LEDs, 3-digit, 7-segment, height 10 mm Setpoint : green LEDs, 3-digit, 7-segment, height 7,5 mm
Switch	the configuration and calibration are accessed via an internal switch, which can only be accessed when the equipment is disconnected
Insulation resistance conforming to IEC 348	> 100 MΩ
Insulation voltage according to IEC 348	1500 V
Immunity to interference conforming to IEC 801-4	Level 3
Immunity to interference conforming to IEC 801-2	8000 V
Accuracy	± 0.3 % of the full measurement scale at an ambient temperature of 25 °C at Un
Operating temperature range (°C)	0 →+50 °C
Storage temperature range (°C)	-30 →+70 °C
Relative humidity (Rh no condensation)	20 →85 %
Housing material	self-extinguishing UL94 VO grade
Front panel	polycarbonate membrane
Protection class according to IEC 529 (IEC 70-1)	IP 54
Connection	screw terminals
Weight (g)	160
Approvals	UL/CSA

### Inputs

Thermocouples J, K, and N	IEC 584-1
Thermocouples L	DIN 43710
Reference junction	Automatic cold junction compensation : 0 to 50 °C (Thermocouples)
Reference junction drift	0,1 °C / °C
Line resistance	100 Ω max
Calibration (IEC 584-1)	IEC 584 - 1
Resist. temp. detector Pt 100 according to IEC 751	3-wire
Line resistance	< 4 Ω
Input type and standard range TC	L (0/800 °C) (0/999°F) J (0/800 °C) (0/999°F) K (0/999 °C) (0/999°F) N (0/999 °C) (0/999°F)
Input types and standard range RTD Pt100	(-199/500 °C) (-19,9/99,9°F) (-199/999 °C)

### Output

Type of output	discontinuous
Action type CTH 46	heating-cooling
Action type CTD 43 - CTD 46	heating or cooling
Limitation of output power : SOFT-START- heat action	adjustable from 0 to 100 %
Limitation of output power : SOFT-START-heat/cool action	adjustable from -100 to + 100 %
Main output changeover relay	3 A 250 V AC resistive
Main output--logic	Max. load : 700 Ω Level 0 : < 0,5 V DC

	Level 1 :
	14 V DC± 20 % @ 20 mA max
	24 V DC± 20 % @ 1 mA max
Main output cycle time	1 s →200 s
Cool output CTH 46 only	N/O-1 A contact, 250 V AC resistive
Alarm output CTD 43-CTD 46 only	N/O-1 A contact, 250 V AC resistive

### Control characteristics

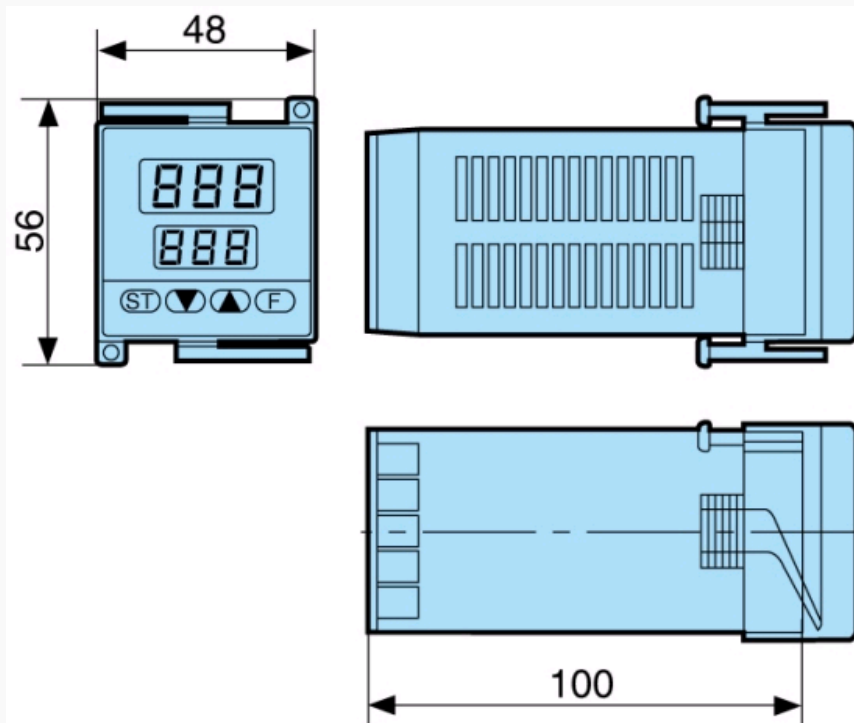
Control algorithm	PID with auto-tune and adaptive tune : SMART
Control type CTD 43 CTD 46	heating or cooling
Control type CTH 46	heating-cooling
Sampling time	500 ms
Proportional band Pb CTD 43 - CTD 46	1,0 % to 99,9 % of scale amplitude
Proportional band Pb CTH 46	1,5 % to 99,9 % of scale amplitude
Proportional band Pb	▪
Note : if Pb = 0 % discrete action	
Hysteresis (during discrete action)	0,1 % to 10 % of scale amplitude
Integral time ti	1 min 20 s to 20 min 0 s (10 s resolution)
Note : if ti > 20 min	
Derivative time td.	1 s to 9 min 59 s
Note : if td=0	
Cycle time heating	1 s →200 s
Cycle time cooling (CTH46 only)	1 s →200 s
Heat-cool control CTH 46	rC x heat proportional band
Cool proportional band	
Heat-cool control	0,20 →1,00
rC : relative gain	
Heat-cool control CTH 46	-20 % to + 50 % of the heat proportional band
dead.overlap band	

### Alarms (on CTD 43 and CTD 46 only)

Type of output	direct or reverse
Functions	absolute alarm band alarm deviation alarm
Reset to zero	manual
Inhibition	can be configured
Alarm threshold - absolute alarm	absolute value independent from SP
Alarm threshold - band alarm	value relative to SP, adjustable from 0 to 500 °C/°F
Alarm threshold - deviation alarm	value relative to SP, adjustable from -199 °C/°F (negative deviation) to +500 °C/°F (positive deviation)
Alarm	0.1 to 10 % of scale amplitude

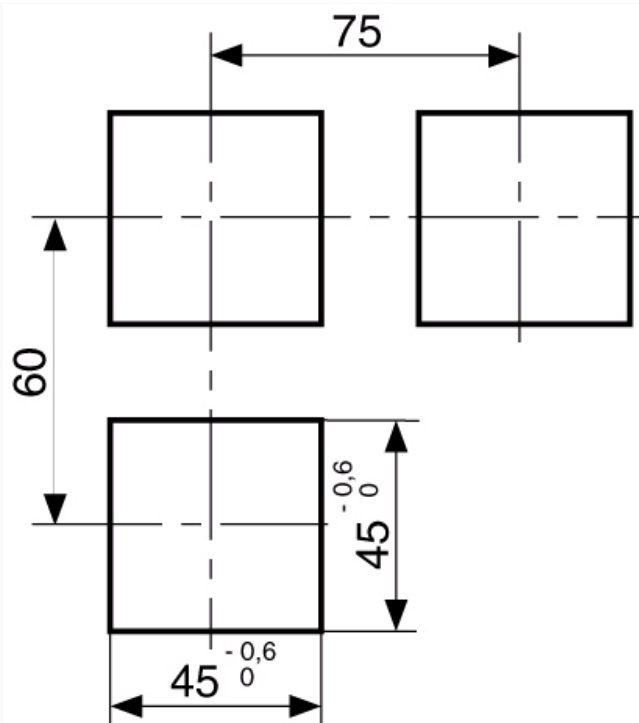
### Dimensions (mm)

#### CTH/CTD



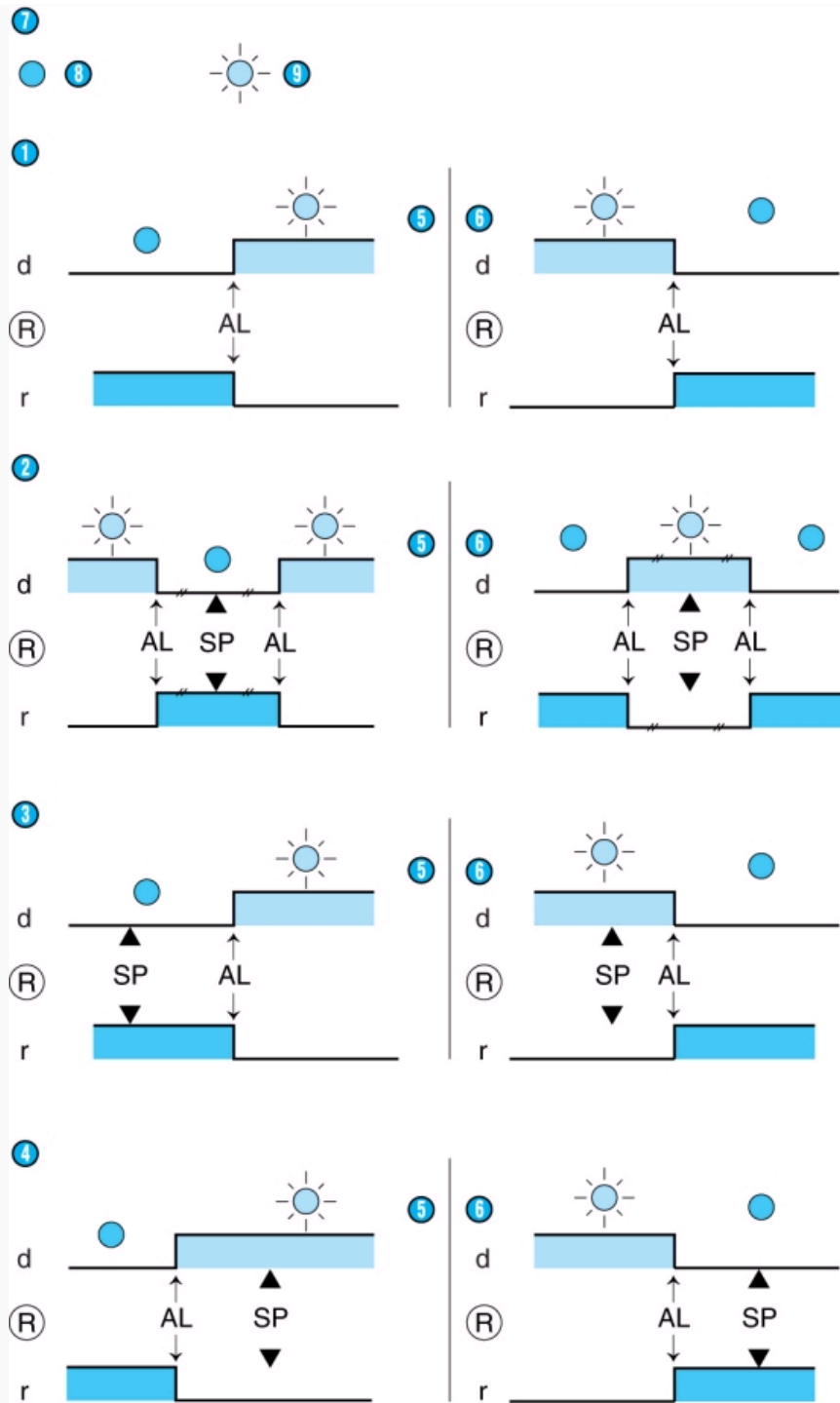
### Dimensions (mm)

#### Panel cut-out



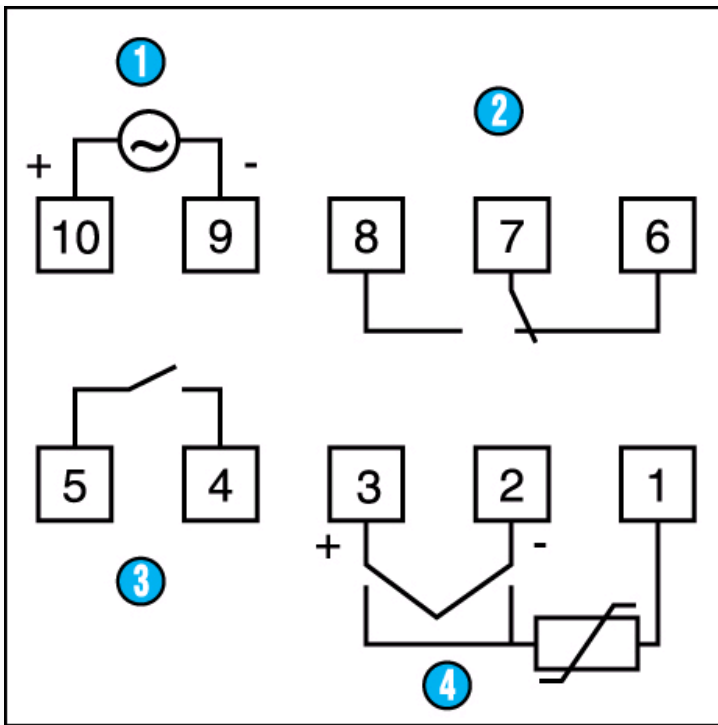
Panel cut-out

**Curves****Operating modes****Summary of the various configurations**



N°	Legend
1	Absolute alarm
2	Band alarm
3	Positive deviation alarm
4	Negative position alarm
5	High
6	Low

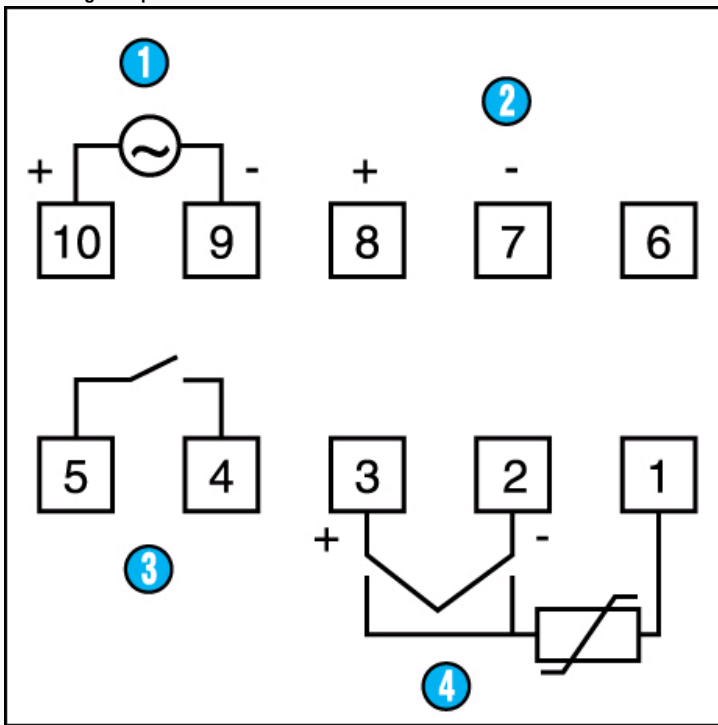
**Connections**  
CTD 43 relay output



N°	Legend
1	Supply
2	Main output 250 V AC / 3 A
3	Alarm output 250 V AC / 1 A
4	Thermocouple or resistance temperature detector connection

**Connections**

**CTD 43 logic output**



N°	Legend
1	Supply
2	Main output 0-24 V DC / 20 mA max

①	Alarm output 250 V AC / 1 A
②	Thermocouple or resistance temperature detector connection