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 compesation : 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 rangeRTD 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

Unless otherwise specified, the characteristics given are applicable to all or part of the product range selected

	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

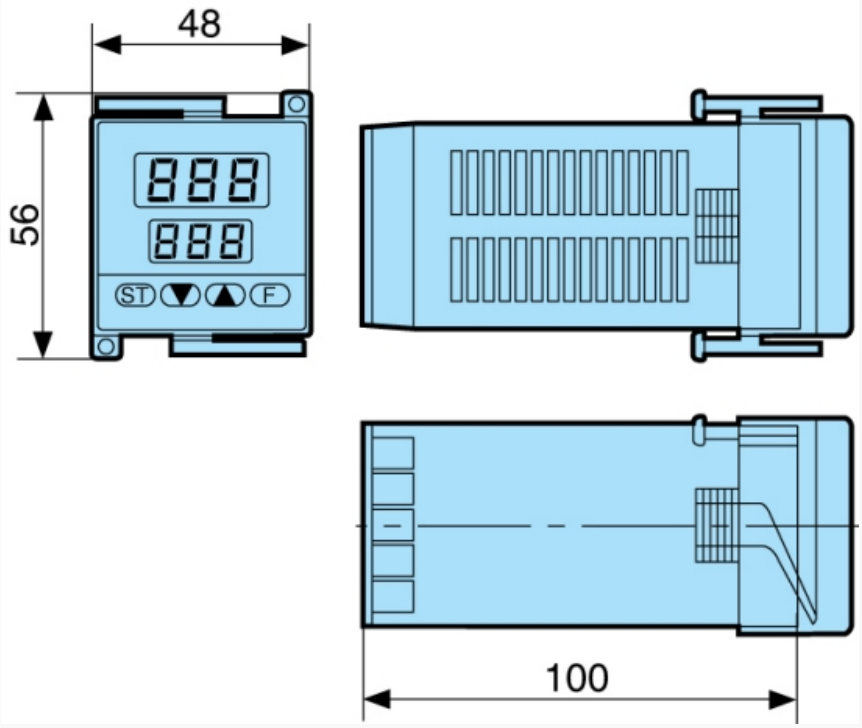
Control algorithm	PID with auto-tune and adaptive tune : SMART
Control type CTD 43 CTD 46	heating or cooling
Control type CTH 46	heating-cooling
Sampling time	500 ms
Proportional band Pb CTD 43 - CTD 46	1,0 % to 99,9 % of scale amplitude
Proportional band Pb CTH 46	1,5 % to 99,9 % of scale amplitude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

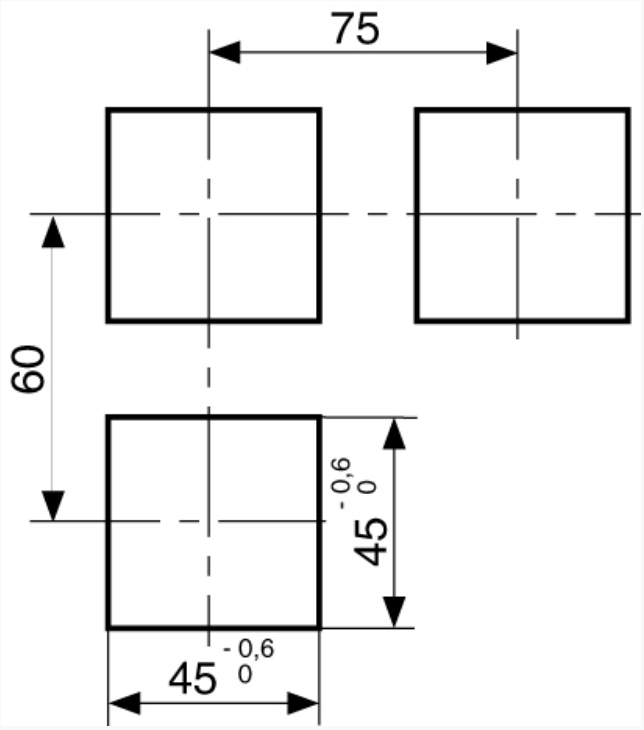
CTH/CTD



Dimensions (mm)

Panel cut-out

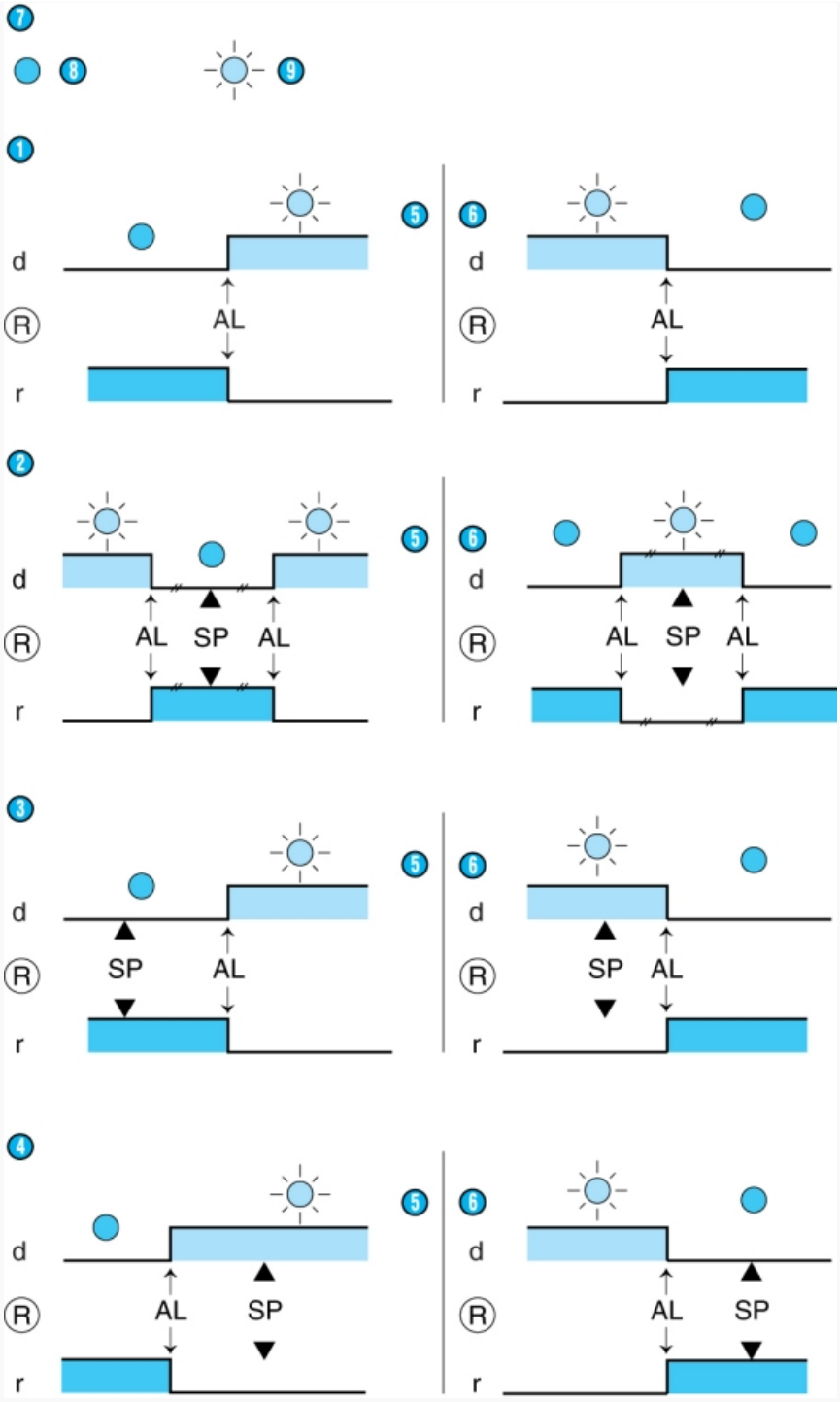
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Panel cut-out

Curves

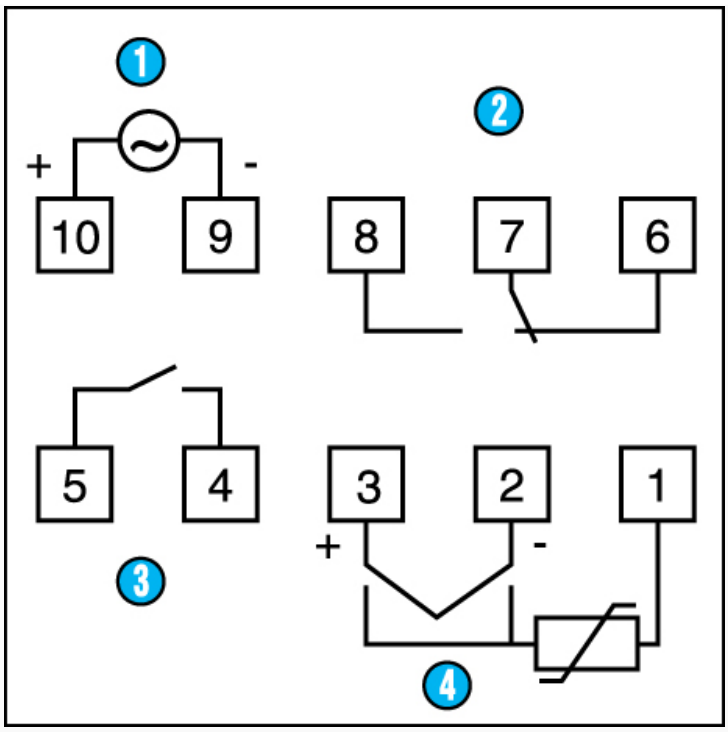
Operating modes
Summary of the various configurations



Nº	Legend
1	Absolute alarm
2	Band alarm
3	Positive deviation alarm
4	Negative position alarm
5	High
6	Low

Connections

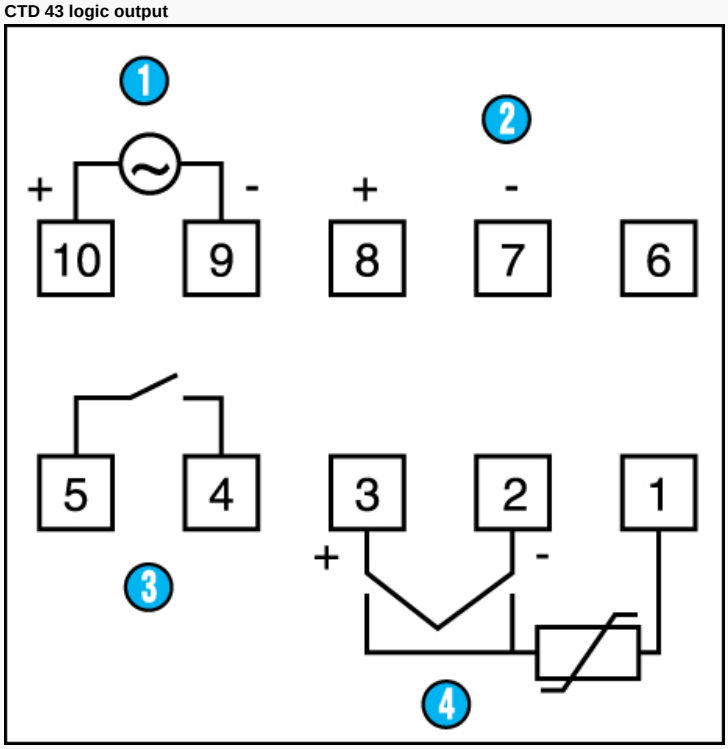
CTD 43 relay output



Nº	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



Nº	Legend
1	Supply
2	Main output 0-24 V DC / 20 mA max

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