

Selling points of the range

- + Heating and / or cooling function
- + 2 independent alarms
- + Load break detection
- + 2 setpoint which can be selected remotely
- + Manual / automatic power adjustment
- + RS 485 / MODBUS-JBUS serial communication option



Part number characteristics	89 422 008
Output	Relay
Voltages	100 to 240 VAC
Product available	stocked item

General characteristics

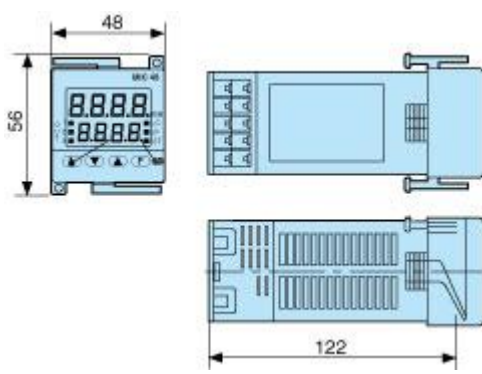
Medium	air oil water
rC relative gain	1.00 0.80 0.40
Cycle time cooling	10 s 4 s 2 s

General characteristics	
Supply	100 to 240 VAC, 24 VACDC
Frequency (Hz)	50 / 60
Tolerance	-15 % +10 % Un
Consumption	8 VA max.
Display measurement	red LEDs-4 digits, 7 segment , height 10 mm
Display setpoint	green LEDs-4 digits, 7 segment, height 7.5 mm
Control characteristics	
Control algorithm	PID with auto-tune and adaptive tune : SMART
Control type	heat or cool heat / cool
Sampling time linear input	250 ms
Sampling time TC and RTD input	500 ms
Proportional band Pb heat or cool	1.0 to 100 % of scale amplitude
Proportional band Pb heat - cool	1.5 to 100 % 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	20 s to 20 min
Note : if ti > 20 min	integral action is inactive
Derivative time td.	1 s to 10 min
Note : if td=0	derivative action is inactive
Cycle time heating	1 s →200 s
Cycle time cooling	1 s →200 s
Heat-cool control	rC x heat proportional band
Cool proportional band	
Heat-cool control	
rC : relative gain	0.20 →1.00
Heat-cool control	
dead.overlap band	-20 % to + 50 % of the heat proportional band
Inputs	
Thermocouples J, K, R, S, 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
Input impedance (kΩ)	> 1 M Ω
Calibration (IEC 584-1)	+
Resist. temp. detector 3-wire Pt 100 conforming to DIN 43760	+
Line resistance	20 Ω•max. (Resistance temperature detector)

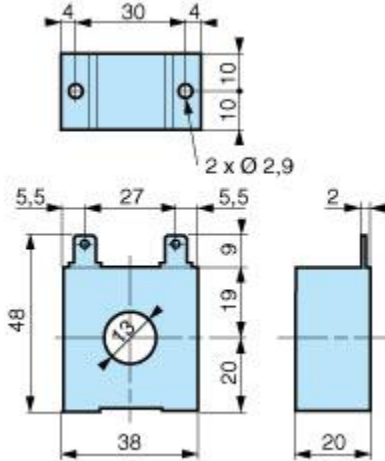
Input type and standard range TC	L (0/400°C) (0/1650°F) (0/900°C) J (0/400°C) (0/1830°F) (0/1000°C) K (0/400°C) (0/2190°F) (0/1200°C) N (0/1400°C) (0/2550°F) R (0/1760°C) (0/3200°F) S (0/1760°C) (0/3200°F)
Input types and standard range RTD Pt100	(-199.9/400.0°C) (-199.9/400.0°F) (-200/800°C) (-330/1470°F)
Measurement range	- 1999 →+ 4000
Decimal point	adjustable : - - - - , - - - - . , - - - - . , - - - - .
Current transformer input for monitoring the load break	
Input	50 mA AC
Measurement range with transformer	10 A →100 A
Resolution	10 to 20 A : 0.1 A 21 to 100 A : 1 A
Measurement logic threshold	Relay output : NO or NC Logic output : level 1 or 0
Measurement update period	50 ms
Setpoints	- main setpoint : SP + auxiliary setpoint : SP2
Selection input SP/SP2	50 mA AC selection via external N/C type contact
Output	
Type of output	discontinuous
Action type	can be programmed for heating and/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 %
Output specification	
OUT 1 Main output N/O contact	3A 250 V AC resistive (N/C contact is possible via a jumper) Level 0 : <0.5 V DC Level 1 :
OUT 1 Main output logic	14 V DC±20 % @ 20 mA max 24 V DC±20 % @ 1 mA max
Main output cycle time	1 s →99 s
OUT 2 Cool output or alarm 1 output	N/O-2A contact, 250 V AC resistive
OUT 3 Load break output and/or alarm 2 output	N/O-2A contact, 250 V AC resistive
Description of alarms 1 and 2	
Type of output	direct or reverse
Functions	absolute alarm band alarm deviation alarm
Reset to zero	Manual / automatic
Inhibition	Configuration
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 -500 °C/°F (negative deviation) to + 500 °C/°F (positive deviation)
Alarm	0.1 to 10 % of scale amplitude
Serial link	
Type	RS485
Protocol	MODBUS, J.BUS
Address	1 →255
Number of data bits	8
Transmission speed	600 →19 200 Bauds
Parity	even, odd, no
Stop bit	1
Physical details and protection	
Insulation resistance conforming to IEC 348	> 100 MO
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	± 0.2 % of the full measurement scale ± 1 digit at an ambient temperature of 25 °C at Un
Operating temperature range (°C)	0 →+ 50
Storage temperature range (°C)	-20 →+ 70 °C
Relative humidity (no condensation)	20 →85 % Rh
Housing	
Material housing	self-extinguishing UL94 grade VO
Front panel	Polycarbonate membrane
Protection class according to IEC 529 (IEC 70-1)	IP 54
Connection	screw terminals
Weight (g)	250
Approvals	
UL / CSA	in progress
Protection	
Safe-guard	detects a fault in the equipment caused by external interference and activates automatic reset without modification of the process.
Switch	the configuration and calibration are accessed via an internal switch, can only be accessed when the device is unplugged.

Dimensions

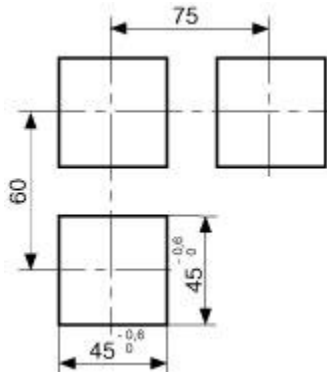
MIC 48



Zoom
Current transformer



Zoom
Panel cut-out



Zoom

Accessories

Accessories	Code
Current transformers 10 A / 50 mA	26 852 301
Current transformers 25 A / 50 mA	26 852 302
Current transformers 50 A / 50 mA	26 852 303
Current transformers for EIT 100 A / 50 mA	26 852 304

Curves

Operating modes

Summary of the various configurations

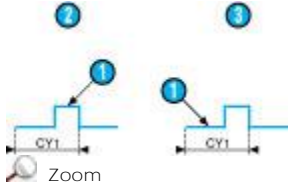


Zoom

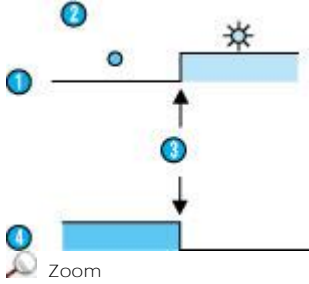
N°	Legend
1	absolute alarm
2	band alarm
3	positive deviation alarm
4	negative deviation alarm
5	high

6	low
7	Alarm display LED
8	LED off
9	LED on

Description of the load break monitoring alarm



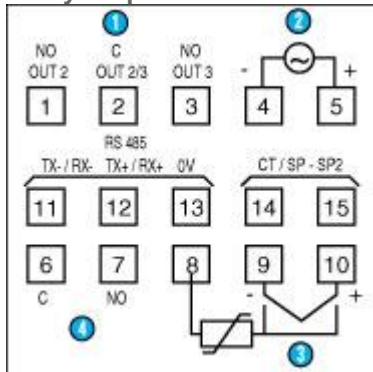
N	Legend
1	Measurement
2	OUT 1 N/O type
3	OUT 1 N/C type



N	Legend
1	Dir
2	Low level alarm
3	Threshold in A
4	Rev

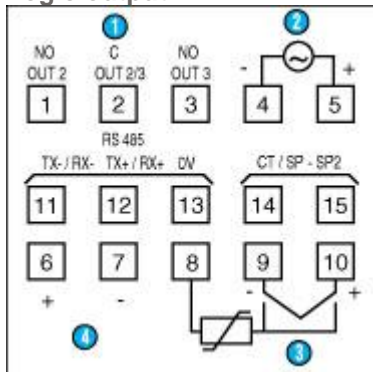
Connections

Relay output



N	Legend
1	250 V AC / 2A resistive
2	Supply
3	Linear
4	Main output 250 V AC / 3 A resistive
11-12-13 : Serial link	
14-15 : Input 50 mA AC (Current transformer connected for load break monitoring or selection of 2nd setpoint)	

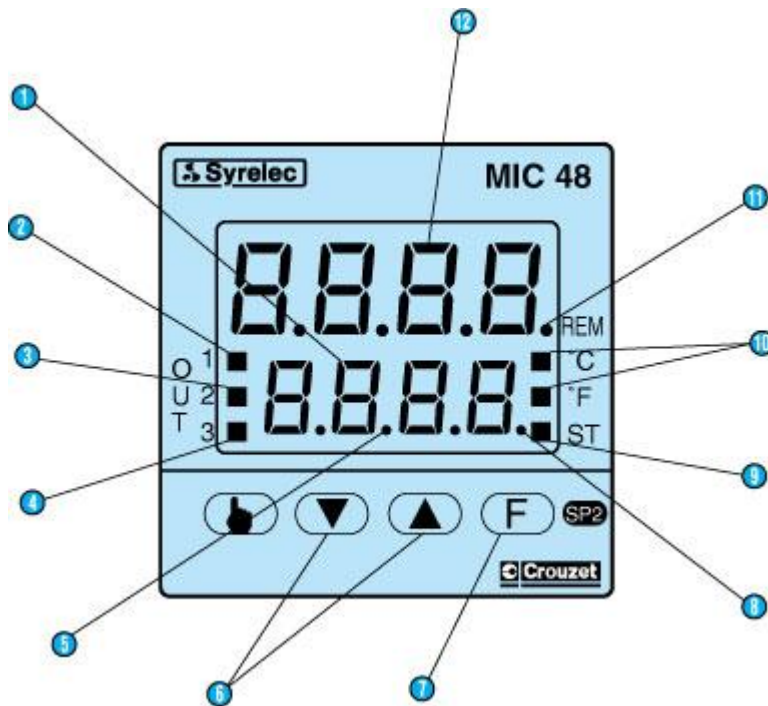
Logic output



N	Legend
1	250 V AC / 2A resistive
2	Supply
3	Linear
4	Main output 250 V AC / 3 A resistive
11-12-13 : Serial link	
14-15 : Input 50 mA AC (Current transformer connected for load break monitoring or selection of 2nd setpoint)	

Applications

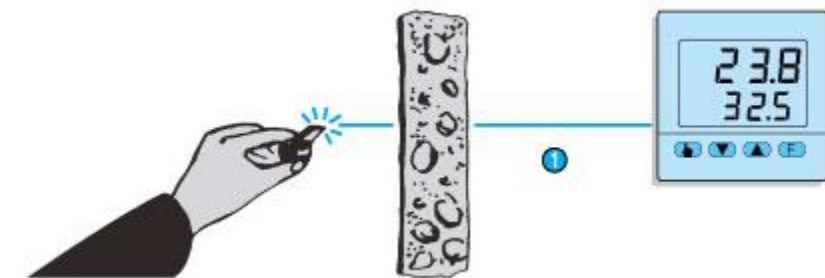
Display



Legend

- 1 Lower display : setpoint output power heating element consumption (in amps) abbreviation of the parameter selected during programming
- 2 Main output status LED, lit when the output is active.
- 3 Cool output or alarm 1 output status LED, lit when the output is active
- 4 Load break alarm output and/or alarm output 2 status LED, lit when the output is active
- 5 Manual/automatic operation. The LED flashes when the controller is in manual mode
- 6 Parameter modification and direct access to the setpoint
- 7 Parameter selection and validation in configuration and parameter definition modes. This key is also used to display the output power and the heating element consumption
- 8 SP2 LED flashes slowly when control occurs at setpoint SP2. SP2 LED flashes rapidly when the setpoint value is programmed via the RS485 serial link
- 9 LED indicating the SMART function
- 10 When the sensor input is connected to a thermocouple or a Pt100, the LED corresponding to the selected unit of measurement is lit
- 11 REM LED on when the controller is communicating via the RS485 serial link
- 12 Upper display : measurement parameter values during programming

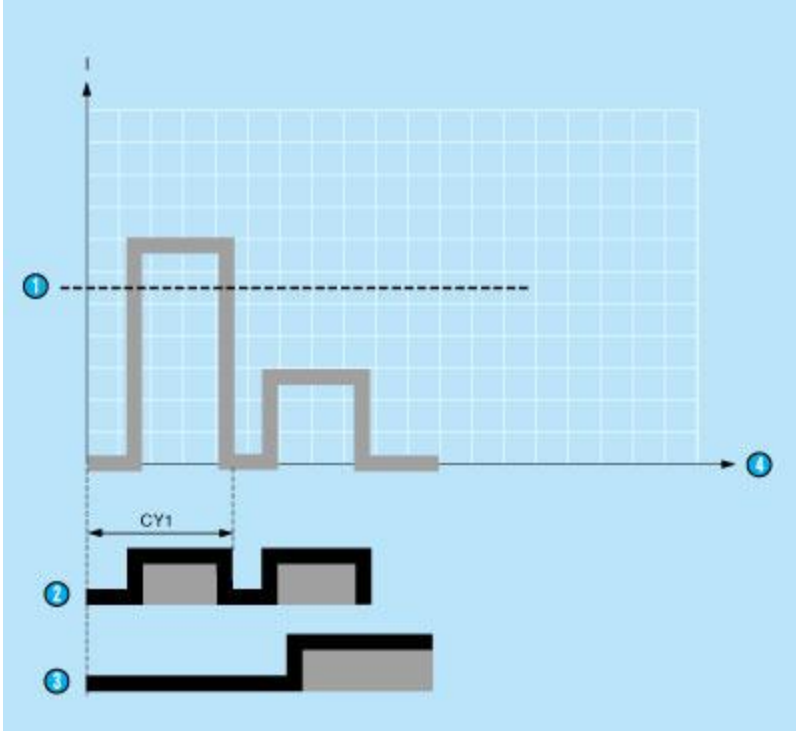
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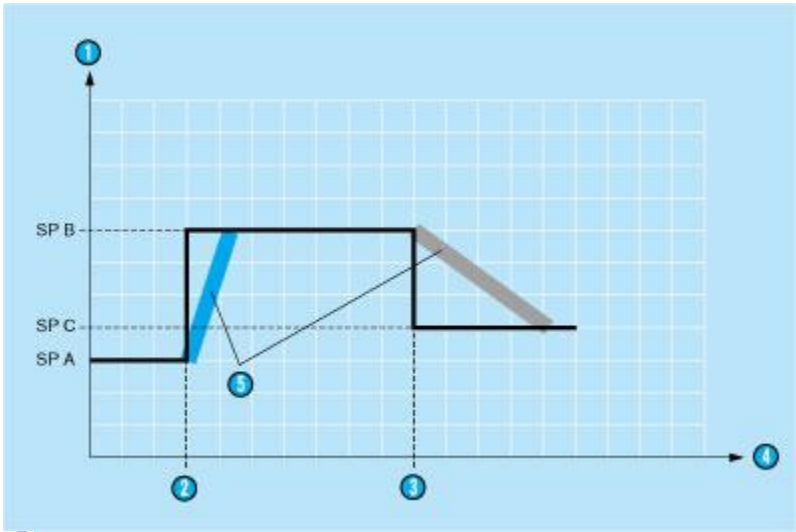
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