



## LC5248-AT

Auto-tune PID Controller (48x48mm)

Masibus LC5248-AT is designed to offer outstanding control performance in a compact 1/16 DIN package providing a simple solution for a wide variety of applications: such as plastic manufacturing, packaging machinery and food processing applications requiring precise heating/cooling control.

LC5248-AT offers a cost-effective alternate to implement loops in a PLC while at the same time improving loop performance. It accepts one universal process input suitable for Thermocouple, RTD or linear mA/Volt.

With a fast responsive PID auto-tuning algorithm it is equipped with Heat/Cool relay or SSR output for control function. Auto-tuning adjusts the PID parameters for desired set-point according to the current process dynamics without repeating process-cycle and so has no harmful effect on the current operating conditions. It has flexibility to switch control to On-Off or Manual mode for non critical applications.

Two outputs are available providing a combination of Heat/Cool relays or Relay+SSR based on application requirement. Compact size and simple programming makes the installation and operation of LC5248-AT easier and user-friendly. It has SMPS (85-265 VAC) and DC (18-36 VDC) power supply options.

### Features

- 1/16 DIN package
- Auto-tune PID
- Universal input (TC, RTD, Volts, mA)
- Accuracy 0.25% of F.S.
- Two Outputs (Relay/SSR)
- Fail-safe Design protecting the process in case of system malfunctioning
- Display brightness control

### Applications

- Injection Molding machines
- Plastic Extrusion process
- Packaging machines
- Food processing applications

# Technical Specifications:

## Input

Input Type	Thermocouple (J, K), RTD (Pt100), Current, Voltage
Display Range	Refer Table-1
Accuracy	±0.25% of FS ±1 Count
ADC Resolution	16 bits
Display Resolution	0.1 / 1.0 °C
Sampling Rate	4 Samples/Sec
CJC Error	±2.0 °C
Sensor open	All inputs except 0-5V
Sensor Burnout current	0.25uA
RTD excitation current	0.166 mA (Approx.)
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 150ppm/°C
Input Impedance	> 1MΩ
Max Voltage	20VDC

## Display & Keys

Process Value	0.4", Red 4-digit
Set Value	0.28", Green 4-digit
Relay	Discrete LEDs
Keys	Enter (ENT), Increase (INC), Decrease (DEC)

## Output Control

Output Options	Relay	2A @ 230VAC / 30VDC Single Change over (C, NO, NC)
	SSR	18VDC, 20mA
	Voltage	0/1-5V, 0-10V @2KΩ Min.
	Current	0/4-20mA @500Ω Max.

## Alarm

Relays	2 Nos.(Max) 2A @ 230VAC / 30VDC Single Change over (C, NO, NC)
SSR	1 No. 11VDC (10mA)

## Functional

Control Mode	P, PI, PID, and ON/OFF control for Relay-1/SSR
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Parameter	Range
Proportional Band	0 to 9999
Integral Time	0 to 1000 seconds
Derivative Time	0 to 180 seconds
Cycle Time	SSR: 1 to 60 sec Relay: 10 to 300 sec

## Power Supply

Standard	85-260VAC/ 125-300VDC
Optional	18-36VDC

## Isolation (Withstanding voltage)

- Between primary terminals\* and secondary terminals\*\*:  
At least 1500 V AC for 1 minute
- Between primary terminals\* and grounding terminal:  
At least 1500 V AC for 1 minute
- Between grounding terminal and secondary terminals\*\*:  
At least 1500 V AC for 1 minute
- Between secondary terminals\*\*:  
At least 500 V AC for 1 minute

\* Primary terminals indicate power terminals and relay output terminals.

\*\* Secondary terminals indicate analog I/O signal and Communication O/P.

**Insulation resistance:** 20MΩ or more at 500 V DC between power terminals and grounding terminal

## Physical

### Dimensions:

Size	48(W) x 48(H) x 85(D) mm
Front Bezel	48 x 48 mm
Panel Cutout	45 x 45 mm
Depth behind panel	76 mm

Weight	300 gms approx.
Enclosure Material	Molded ABS
Enclosure Protection	IP20
Terminal Cable Size	2.5mm <sup>2</sup>

## Environmental

Operating temperature	0-55 °C
Storage temperature	0-80 °C
Humidity	20-95 %RH non-condensing

**Table-1: Display Range**

Input Type	Range
J	-200 to 1200 °C, -199.9 to 850.0 °C
K	-200 to 1372 °C, -199.9 to 999.9 °C
Pt100	-200 to 850 °C, -199.0 to 850.0 °C
0/1-5V	-1999 to 9999
0/4-20mA (Ext.250Ω)	-1999 to 9999

## Ordering Code

Model	Input		Auxiliary Power Supply		Output	
LC5248-AT	1	J	U1	80-265VAC / 125-300VDC	1	Relay-1 + Relay-2
	2	K	U2	18-36VDC	2	SSR + Relay-2
	3	Pt-100				
	C	1-5V				
	D	0-5V				
	E	4-20mA				
	F	0-20mA				

**Accessories:** Two numbers mounting clamps

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All specifications are subject to change without notice due to continuous improvements.  
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