



Dual Channel Temperature Controller

SPECIFICATIONS

Input-1	Input-2	Range
PT100(0.1°C)	PT100(0.1°C)	-199.9 to 850.0°C
PT100 (1°C)	PT100 (1°C)	-200 to 850°C
*4-20mA / 1-5VDC	*4-20mA / 1-5VDC	-1999 to 9999 (Field Scalable)
*0-20mA / 0-5VDC	*0-20mA / 0-5VDC	
0-10VDC	-	

*Use external 250ohms, 0.1% for current Input
Table 1.1

Inputs

Accuracy⁺	RTD input Linear input	±0.25% of Full Span+1degree ±0.1% of Full Span +1count
Resolution		ADC:16bits, Display:0.1°C/1Count
Sampling Rate		2 Samples/Sec
Sensor open		All inputs except 0-5V,0-10V
Sensor Burnout current		0.25uA
RTD excitation current		0.166mA (Approx.)
Allowable wiring resistance for RTD		Maximum 15 ohms/wire (Conductor resistance between three wires should be equal)
NMRR		> 40 dB
CMRR		> 120 dB
Input Impedance		> 1MΩ(Voltage Input), 250Ω(Current Input)
Max Voltage		20VDC
Offset		-25.0 to 25.0 for PV-1 and PV-2

⁺ Channel to Channel interference: 0.1% of Full Span

Display & Keys

Display	Specification
PV1,PV2	4-Digit, 7-Segment, 0.56" High,Red
Status Indication	Individual RED Led for Relay & Communication Status
Keys	SET1, SET2, Increase, Decrease

Output Types

Relay Output	
Type	Single Change over (C, NO, NC)
Rating	5A @ 230VAC / 30VDC
Mapping	With respect to Input no.
Retransmission Output (Optional)	
Number of output	1 / 2
Mapping	With respect to Input no.
Output Signal	4-20mA / 0-20mA / 0-5V DC/ 1-5V DC /0-10V DC
Load resistance	
For Current o/p	< 500Ω.
For Voltage o/p	> 3KΩ.
Output accuracy	±0.25% of span
Loop Power Supply	
LPS	24VDC (±10%) @60mA with Inbuilt Short Circuit Protection

Communication Details

Interface	RS485 (2 Wire)
Protocol	Modbus-RTU
Baud rate	9600, 19200, 38400 bps

Πηροφορίες

Dimension(H x W x D)mm	96 x 96 x 75
Front Bezel (H x W) mm	96 x 96
Panel Cutout mm	92 x 92
Depth Behind The Panel mm	65
Weight(Approx.)	300g.
Enclosure Material	Molded ABS
Enclosure Protection	IP 20
Terminal Cable Size	2.5 mm ²

Environmental Conditions

TEMPCO	
Input to PV Display	< 100ppm/°C
Display to RX	< 100ppm/°C
Humidity	30% to 95% RH (Non-Condensing)
Instrument Warm-up Time	Approx. 15 min.
Ambient temperature	0 to 55°C
Storage Temperature	0 to 80°C

Power Supply

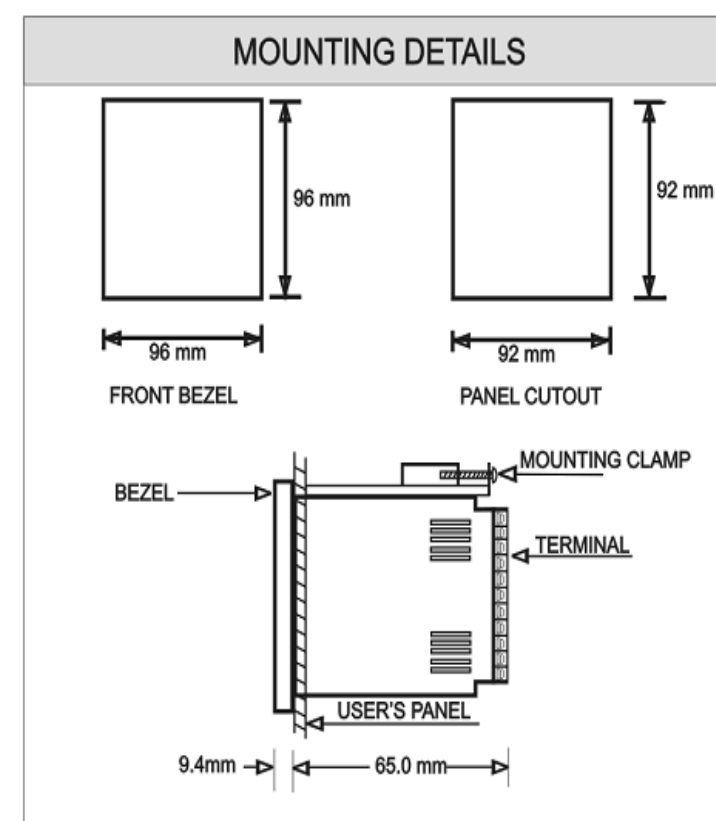
Standard	85-265VAC/ 100-300VDC
Optional	18-36VDC
Power consumption	<10 VA
Data backup	Non-volatile memory (can be written up to 100000 times)

Isolation (Withstanding voltage)

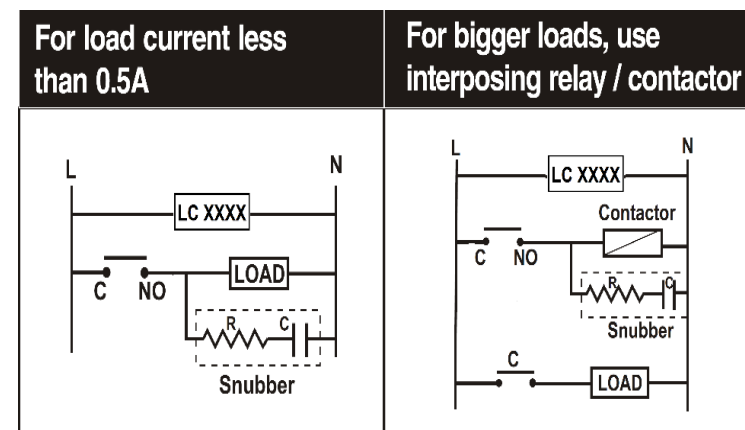
- Between primary terminals* and secondary terminals**:
At least 1500 V AC for 1 minute
 - Between primary terminals* and grounding terminal:
At least 1500 V AC for 1 minute
 - Between grounding terminal and secondary terminals**:
At least 1500 V AC for 1 minute
 - Between secondary terminals**:
At least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

MOUNTING DETAILS



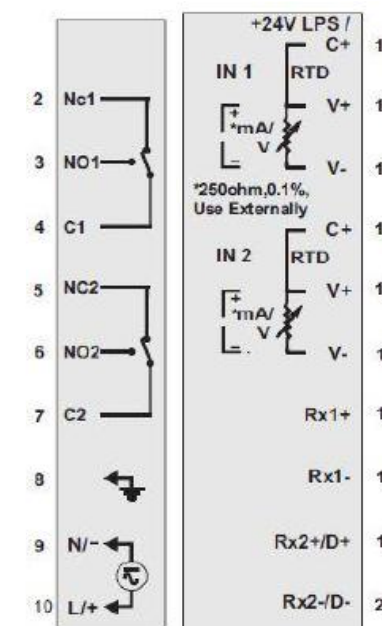
LOAD CONNECTION



Electrical precautions during use

Electrical noise generated by switching of inductive loads can create momentary disruption, erratic display, latch up, data loss or permanent damage to the instrument. Use of snubber circuits across loads as shown above, is recommended.

TERMINAL CONNECTIONS



Terminal No.	Description
2 NC1	• For Relay-1 potential free Contacts • On-Off Control o/p.
3 NO1	
4 C1	
5 NC2	• For Relay-2 potential free Contacts • On-Off Control o/p.
6 NO2	
7 C2	
8 Earth	Earth Connection
9 N/-	Power Supply Input
10 L/+	
11 24+ LPS/ C+	24VDC Loop power supply Terminal 13 is ground Reference or for RTD input-1 (Three wire Compensation).
12 V+	For RTD or Linear Input -1.
13 V-	For RTD or Linear Input -1.
14 C+	For RTD input -2(Three wire Compensation
15 V+	For RTD or Linear Input -2.
16 V-	For RTD or Linear Input -2.
17 Rx1+	• For Retransmission-1 output
18 Rx1-	
19 Rx2+/D+	• For Retransmission-2 output • Modbus-RTU Communication Output
20 Rx2-/D-	

SAFETY / WARNING PRECAUTIONS

To ensure that the device can be operated safely and all functions can be used, please read these instructions carefully.

Installation and Start-up must be carried out by qualified personnel only. The relevant county-specific regulations must also be observed.

Before start-up it is particularly important to ensure:

- Terminal wiring: check that all cables are correctly connected according to the connection diagram
- All wiring must confirm to appropriate standards of good practice and local codes and regulations. Wiring must be suitable for voltage, current and temperature rating of the system.
- Unused control terminals should not be used as jumper points as they may be internally connected, which may cause damage to the unit.

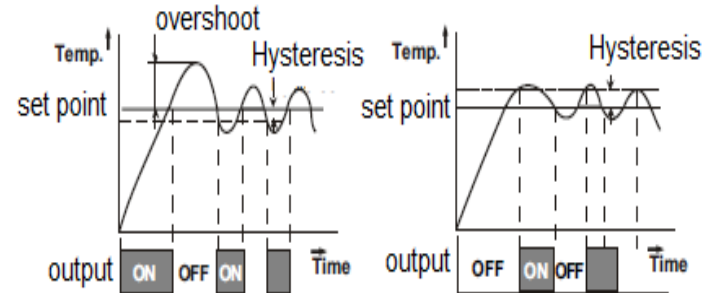
FRONT PANEL DESCRIPTION

Name of Part	Symbol	Function
Increment Key		Increment the Value of any Parameter.
Decrement Key		Decrement the Value of any Parameter.
SET-1 Key (Menu / Enter Key)		- Shows Set Point-1(ST-1), if pressed in RUN mode. - In Sub Menu it can be used to get to the next Parameter. - It is also used to save the parameters to nonvolatile memory, when user setting a proper data by Increment and decrement key for parameter configuration.
SET-2 Key		- Shows Set Point-2(ST-2), if pressed in RUN mode. - Also used to store modified SetPoint-2 Value.
PV 1 (Process Value) Display	PV1	4 digit 0.56 inch RED Display - Display parameter name when user set parameter. - Display Parameter Value when in Edit mode - Display error message when an error occurs.
PV 2 (Process Value) Display	PV2	4 digit 0.56 inch RED Display - Display process value for Input 2 - Display parameter value of parameter in process value field when user set parameter.

Relay-1 Indication	RL1	ON when Relay-1 is energized & OFF otherwise.
Relay-2 Indication	RL2	ON when Relay-2 is energized & OFF otherwise.
TX Indication	Tx	ON when device is transmitting some Data (RS-485).
RX Indication	Rx	ON when device is receiving some Data (RS-485).

CONTROL FUNCTION

ON/OFF Control (For L-ON Mode): The relay is 'ON' up to the set temperature and cuts 'OFF' above the set temperature. As the temperature of the system drops, the relay is switched 'ON' at a temperature slightly lower than the set point.

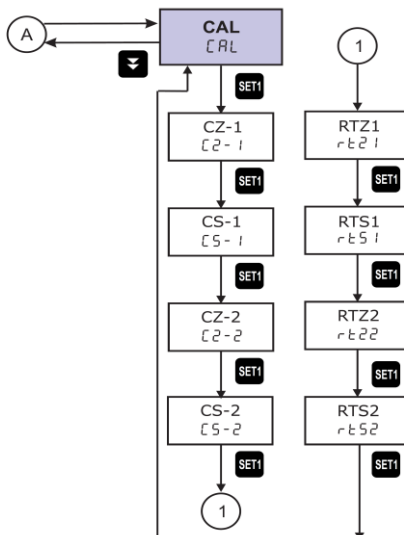
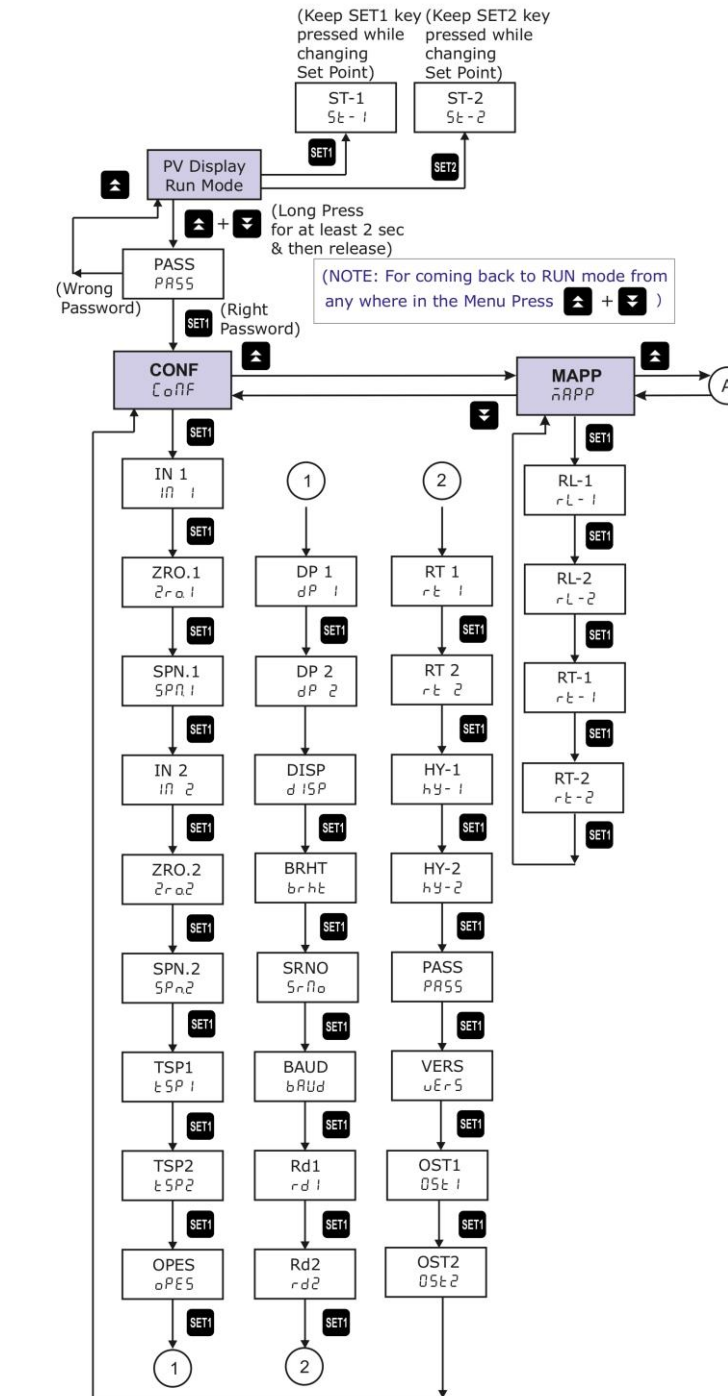


L-ON H-ON

Figure 1.1: Typical Relay operation

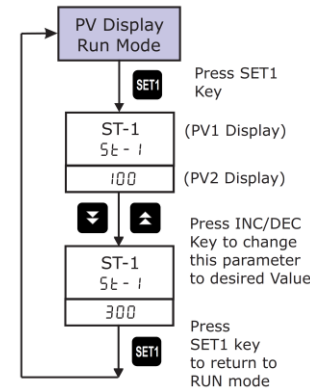
HYSTERESIS: The difference between the temperature at which relay switches 'ON' and at which the relay switches 'OFF' is the hysteresis or dead band.

MENU LAYOUT FOR LC5296-DC

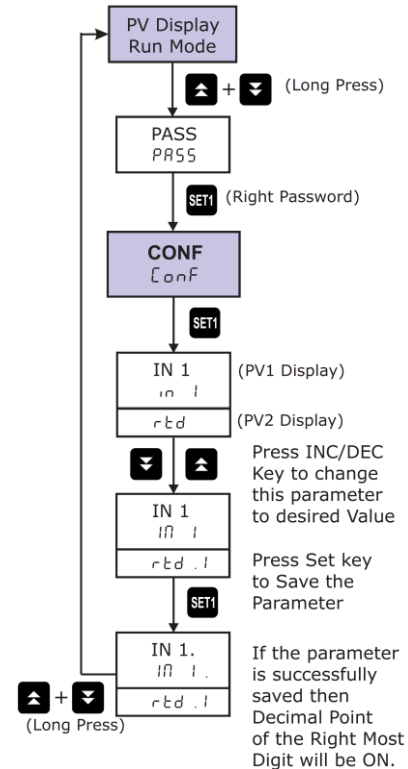


Examples:

1. How to change Set Point?



2. How to change Input Type?



For operation manual please visit www.masibus.com
Specifications are subject to change without notice due to
continuous improvements.

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