masibus

On-Off Controllers

LC5296 Dual Display On-off Controller

5006RN Single Display On-off Controller

LC5296H Compact On-off Controller

LC5248E Compact On-off Controller

Accurate, reliable control of various process applications is provided by Masibus series of On-off controllers with enhanced hardware capabilities in compact enclosure of different size.

Masibus Series of On-Off Controllers are available in various options having different display size of bright seven-segment 0.4", 0.56" and 0.8" LED display for process value and 0.28" & 0.4" LED display for set value as well as status LEDs for set point indication.

It accepts universal input and provides two relay outputs to perform various control and alarm functions. Intuitive configurations with four front tactile keys ensure easy programming.

Process value can also be retransmitted to remote devices as standard current/voltage signals. Data acquisition can be done on SCADA/PLC applications through RS485 for further process automation.

Designed using proven micro-controller technology, these controllers have been validated to perform accurate and reliable performance in harsh field environments.

Features

- Universal input (TC, RTD, Volts, mA)
- Fail-safe Design protecting the process in case of system malfunctioning
- Bright Red seven segment LED Display
- Display brightness control
- Status Indication LEDs
- Relay Output
- Retransmission output (optional)
- RS485 Modbus Communication (optional)
- Transmitter Power Supply

Applications

- Heat treatment furnaces
- Water heating boilers
- Chillers
- Oven control

Technical Specifications

Input

Input type	Thermocouple (J, K, T, R, S), RTD (Pt100), Current, Voltage
Display Range	Refer Table-1
Accuracy	±0.25% of FS ±1 degree for TC & RTD input ±0.1% of FS ±1 count for linear input
ADC Resolution	16 bits
Display Resolution	0.1 / 1.0 °C
Sampling Rate	5 Samples/Sec
CJC Error	±2.0 °C
Sensor open	All inputs except 0-5V
Sensor Burnout current	0.25µA
RTD Excitation current	0.166mA (Approx)
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 150ppm/°C
Input Impedance	> 1MΩ
Max Voltage	20VDC

Display & Keys

	LC5296	5006RN	LC5296H	LC5248E
Process Value	0.56" 7 segment, Red LED, 4 digits	0.56" 7 segment, Red LED, 4 digits	0.56" or 0.8" 7 segment, Red LED, 4 digits	0.4" 7 segment, Red LED, 4 digits
Set Value	0.4" 7 segment, Green LED, 4 digits	NA	NA	0.28" 7 segment, Green LED, 4 digits
Status LEDs	Relay & Communication			
Keys	SET1, SET2, Increase, Decrease			

Output

Control Output

Relays	2 Nos.
Type	Single Change over (C, NO, NC)
Rating	2A @ 230VAC / 30VDC
Control mode	Heat or Cool with time delay

Retransmission Output (Optional)

Current	0/4-20mA @500Ω Max.
Voltage	0/1-5V, 0-10V @2KΩ Min.
Accuracy	0.25% of FS

Communication Output (Optional in lieu of 2nd Retransmission o/p)

Interface	RS485
Protocol	Modbus-RTU
Baud Rate	9600, 19200, 38400

Transmitter Supply	24VDC (±10%) @26mA (Current limited)

Power Supply

Standard	85-265VAC/ 125-300VDC
Optional	18-36VDC

Isolation (Withstanding voltage)
- Between primary terminals* and secondary terminals**: **At least 1500 VAC for 1 minute**
- Between primary terminals* and grounding terminal: **At least 1500 VAC for 1 minute**
- Between grounding terminal* and secondary terminals**: **At least 1500 VAC for 1 minute**
- Between secondary terminals**: **At least 500 VAC for 1 minute**

* Primary terminals indicate power terminals and relay output terminals.
** Secondary terminals indicate Analog input/output signal and Communication output.
Insulation resistance: 50MΩ or more at 500 V DC between power terminals and grounding terminal

Physical

Dimensions:

	LC5296/ 5006RN	LC5296H	LC5248E
Dimension (H x W x D) (in mm)	96 x 96 x 75	48 x 96 x 85	48 x 48 x 120
Front Bezel (H x W) (in mm)	96 x 96	48 x 96	48 x 48
Panel Cutout (in mm)	92 x 92	45 x 92	44 x 44
Depth Behind Panel (in mm)	65	75	115
Weight	300 g approx.	300 g approx.	200 g approx.
Enclosure Material	Molded ABS		
Enclosure Protection	IP20		
Terminal Cable Size	2.5mm^2		

Environmental

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

Table-1: Display Range

Input	Input Type	Range
Thermocouple	J	-200 to 1200 °C
	K	-200 to 1372 °C
	T	-200 to 400 °C
	R	0 to 1768 °C
	S	0 to 1768 °C
RTD	PT-100 (3 wire)	-200 to 850 °C, -199.0 to 850.0 °C
Linear	1-5V/0-5V/0-10V DC	-1999 to 9999
	0/4-20mA (Ext 250 Ω)	

Ordering code

Model	Input		Auxiliary Power Supply		Options: Output-1		Options: Output-2*		Display (Only in LC5296H)	
LC5296	1	J	U1	80-265VAC / 125-300VDC	N	None	N	None	5	0.56"
5006RN	2	K	U2	18-36VDC	1	4-20 mA	1	4-20 mA	8	0.8"
LC5296H	3	T			2	0-20 mA	2	0-20 mA		
LC5248E	4	R			3	1-5 V	3	1-5 V		
	5	S			4	0-5 V	4	0-5 V		
	6	Pt-100			5	0-10 V	5	0-10 V		
	C	4-20 mA					6	RS485		
	D	0-20 mA								
	E	1-5 V								
	F	0-5 V								
	G	0-10 V								

Accessories: Two numbers mounting clamps
***Output-2 = 2nd Retransmission o/p not possible in LC5296H & LC5248E model; only optional RS485 is possible in same.**

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