



Single Compartment

Dual Compartment

LC5296-XP-AT

FLP Auto-Tune PID Controller



Output



RS485



Touch Key Pad



Auto-Tune
PID Control



Password Protected
Setpoint

Masibus model LC5296-XP-AT FLP Auto-Tune PID controller is certified for use in zone 1 of gas group I, IIA & IIB hazardous areas optionally IIC certified controller also available in single compartment. The controller is designed with touch sensitive keys to give full programmability and ease of operation which you only find in controllers available for safe areas. The unit is compact available in single and dual compartment enclosure option rich in features and comes with add on options to suit any application.

Model LC5296-XP-AT incorporates easy to read 4 digit displays for PV and SV, brightness of which is user adjustable, the unit can be configured for any TC, Pt-100 or Volts and comes with variety of output options for control, alarm and interface.

Model LC5296-XP-AT is designed to accept universal supply of 85-265V AC, it also accepts low voltage 18-36V DC operation as an option, a fast sampling 16-bit ADC is used to provide accurate and repeatable performance required for most critical applications.

While a current limited transmitter supply is standard, options of Re-transmission signal and RS485 can be opted for interfacing with other devices and systems like PLC/ SCADA/ recorder etc.

The unit is wall mounting with up to 5 gland openings for multi-core cable wiring.

Features

- Available in single and dual compartment option
- For gas group I, IIA and IIB as per IS:2148/04 and IP65 as per 13346:04 (Optional: IIC group for single compartment version)
- Touch sensitive keys for operation
- Universal input, 10 input types
- Relay/SSR/Analogue control output options
- Auto-tune PID control
- Fail-safe design
- 15 Alarm types
- Password protected configurations
- Auto/Manual selection with bump less transfer
- Two isolated analogue outputs (option)
- RS485 serial communication (option)
- Universal power supply

Applications

Hazardous areas in industries like

- Chemical
- Pharma
- Mining
- Oil & gas
- Petrochemical
- Fertilizer
- Pesticide

TECHNICAL SPECIFICATIONS

Input		Communication Output (Option)	
Input Type	Thermocouple (E, J, K, T, B, R, S), RTD (Pt100), Current (Ext. 250Ω), Voltage	Interface	RS485
Display Range	As per Table-1	Protocol	Modbus RTU
Accuracy	±0.25% of FS ±1 Count for TC, RTD input ±0.1% of FS ±1 digit for Linear input	Baud Rate	9600, 19200, 38400
ADC Resolution	16 bits	Alarm Output	
Display Resolution	0.1 / 1.0 °C	Relays	1 (If control output is Relay/ SSR) Or 2 (If control output is AO)
Sampling Rate	5 Samples/sec	Type	Single Change over (C, NO, NC)
CJC Error	±2.0 °C	Rating	5A @ 230V AC / 30V DC
Sensor open	All inputs except 0-5V / 0-10 V	Transmitter supply	24V DC (±10%) @26mA (Current limited)
Sensor Burnout current	0.25uA	Power Supply	
RTD excitation current	0.166 mA Approx.	Standard	85-260V AC/ 100-300V DC
NMRR	> 40dB	Optional	18-36V DC
CMRR	> 120dB	Power Consumption	<10 VA
Temp-co	< 100ppm for Input to Display < 150ppm for Input to retransmission output	Isolation (Withstanding voltage)	
Input Impedance	> 1MΩ (Voltage) / 250Ω (Current)	Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute	
Max Voltage	20V DC	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 @ 500 V DC between power terminals and grounding terminal	
Display and Keys		Physical	
Process Value	0.56", 4-digit, Red 7 segment LED	Gas Groups	IIA/IIB Single Compartment
Set Value	0.4", 4-digit, Green 7 segment LED	Dimensions (mm)	150(H) x 150(W) x 120(D)
Status Indication	Relay, Communication, A/M & SSR	Weight	2.6 Kgs
Keys	Enter, A/M, Increase, Decrease	Enclosure type	Explosion Proof, Aluminum Alloy LM-6, Ex-d
		Area Classification	Zone 1 & 2
		Ingress Protection	IP65
		Mounting type	Wall mount using 4 nos. of M8 size bolts
		Gland / plug details	2 nos. M20 Cable glands and 3 blind plugs
Output		Environmental	
Control Output		Operating temperature	0-55 °C
Control Type	On/Off, P, PI, Auto tune PID	Storage temperature	0-80 °C
Manual offset	±50% of P band	Humidity	30-95 % RH non-condensing
Proportional band	0.0 to 999.9 or 0 to 9999		
Integral time	0(off) to 1000 sec		
Derivative time	0(off) to 180 sec		
Cycle time	For SSR: 1 to 60 sec For Relay: 10 to 300 sec (Hyst in on/off mode)		
Relay Control Output			
Relays	1 No		
Type	Single Change over (C, NO, NC)		
Rating	5A @ 230V AC / 30V DC		
SSR Control Output (Optional in lieu of Relay control o/p)			
Rating	11V DC@20mA		
Resolution	10 msec		
Analogue MV Output (Option)			
Current	0-20mA/4-20mA @500Ω Max		
Voltage	0-5V/ 1-5V/ 0-10V @3KΩ Min		
Accuracy	0.25% of FS		
Analogue PV Output (Option)			
Current	0-20mA/ 4-20mA @500Ω Max		
Voltage	0-5V/ 1-5V/ 0-10V @3KΩ Min		
Accuracy	0.25% of FS		
		Table 1: Display Range	
		Input Type	Ranges
		Thermocouple	E -200 to 1000 °C
			J -200 to 1200°C
			K -200 to 1372°C
			T -200 to 400°C
			B 450 to 1800°C
			R 0 to 1768°C
		S 0 to 1768°C	
		RTD	Pt100 (3 wire) -200 to 850 °C, -199.0 to 850.0 °C
		Voltage/Current	1-5V/0-5V/0-10V DC 0/4 -20mA (Ext. 250Ω) -1999 to 9999

Ordering Code

Model	Input	Power Supply	Control Output Type	Output Option				Gas Group / Compartment	No. of Extra Glands
				1 (AO1*)		2 (AO2** or RS485)			
LC5296-XP-AT	X	XX	X	X	X	X	XX	X	
	1	E	U1 85-260V AC/ 100-300V DC	1	Relay	N	None	N	None
	2	J	U2 18-36V DC	2	SSR	1	4-20 mA	1	4-20 mA
	3	K		3	AO1*	2	0-20 mA	2	0-20 mA
	4	T		4	Relay - On/Off	3	1-5V	3	1-5V
	5	B		4		4	0-5V	4	0-5V
	6	R		5		5	0-10V	5	0-10V
	7	S		6		6	RS485		
	9	Pt100						1D	IIA/IIB Dual Compartment
	C	4-20mA							
	D	0-20mA							
	E	0-5V							
	F	1-5V							
	G	0-10V							

*Configurable as MV or PV

** PV only

*When AO1 is selected as control o/p type, than in output option AO1 type must be selected from ordering code

Standard Accessory

2 nos of M20 cable glands & 3 nos. of blind plugs