



Single Compartment

Dual Compartment

LC5296-XP-AT FLP Auto-Tune PID Controller

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

- Chemicals
- Pharma
- Mining
- Oil & gas
- Petrochemical
- Fertilizers
- Pesticides

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			
Display and Keys		Between grounding terminal and secondary terminals**: At least 1500 V AC for 1 minute			
Process Value	0.56", 4-digit, Red 7 segment LED	Between secondary terminals**: At least 500 V AC for 1 minute			
Set Value	0.4", 4-digit, Green 7 segment LED	* Primary terminals indicate power terminals and relay output terminals.			
Status Indication	Relay, Communication, A/M & SSR	** Secondary terminals indicate analog I/O signal and Communication O/P.			
Keys	Enter, A/M, Increase, Decrease	Insulation resistance: 20MΩ or more @ 500 V DC between power terminals and grounding terminal			
Output		Physical			
Control Output		Gas Groups	IIA/IIB Single Compartment	IIC Single Compartment	IIA/IIB Dual Compartment
Control Type	On/Off, P, PI, Auto tune PID	Dimensions (mm)	150(H) x 150(W) x 120(D)	180(H) x 165(W) x 140(D)	340 (H) X 186 (W) X 110 (D)
Manual offset	±50% of P band	Weight	2.6 Kgs	3 Kgs	6 Kgs
Proportional band	0.0 to 999.9 or 0 to 9999	Enclosure type	Explosion Proof, Aluminum Alloy LM-6, Ex-d		
Integral time	0(off) to 1000 sec	Area Classification	Zone 1 & 2		
Derivative time	0(off) to 180 sec	Ingress Protection	IP65		
Cycle time	For SSR: 1 to 60 sec For Relay: 10 to 300 sec (Hyst in on/off mode)	Mounting type	Wall mount using 4 Nos of M8 size bolts		
Relay Control Output		Gland / plug details	2 nos 3/4" ET Cable glands and 3 blind plugs		
Relays	1 No	Environmental			
Type	Single Change over (C, NO, NC)	Operating temperature	0-55 °C		
Rating	5A @ 230V AC / 30V DC	Storage temperature	0-80 °C		
SSR Control Output (Optional in lieu of Relay control o/p)		Humidity	30-95 % RH non-condensing		
Rating	11V DC@20mA	Table 1: Display Range			
Resolution	10 msec	Input Type		Ranges	
Analogue MV Output (Option)		Thermocouple	E	-200 to 1000 °C	
Current	0-20mA/4-20mA @500Ω Max		J	-200 to 1200°C	
Voltage	0-5V/ 1-5V/ 0-10V @3KΩ Min		K	-200 to 1372°C	
Accuracy	0.25% of FS		T	-200 to 400°C	
Analogue PV Output (Option)			B	450 to 1800°C	
Current	0-20mA/ 4-20mA @500Ω Max		R	0 to 1768°C	
Voltage	0-5V/ 1-5V/ 0-10V @3KΩ Min	S	0 to 1768°C		
Accuracy	0.25% of FS	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	X	XX	X					
	1	E	U1	85-260V AC/ 100-300V DC	1	Relay	N	None	N	None	N	None		
	2	J	U2	18-36V DC	2	SSR	1	4-20 mA	1	4-20 mA	1S	IIA/IIB Single Compartment	1	1 extra gland
	3	K			3	AO1*	2	0-20 mA	2	0-20 mA	2S	IIA/IIB & IIC Single Compartment	2	2 extra glands
	4	T			4	Relay - On/Off	3	1-5V	3	1-5V			3	3 extra glands
	5	B			4		4	0-5V	4	0-5V	1D	IIA/IIB Dual Compartment		
	6	R			5		5	0-10V	5	0-10V				
	7	S					6	RS485						
	9	Pt100												
	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 3/4" ET Cable glands & 3 nos of Blind plugs