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Single Compartment

Dual Compartment

LC5296-XP-AT

FLP Auto-Tune PID Controller

RELAY / ANALOG
Output

Modbus
RS485

Touch Key Pad

PID Control
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 6 glands 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

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TECHNICAL SPECIFICATIONS

Input

Input Type	Thermocouple (E, J, K, T, B, R, S), RTD (Pt100), Current (Ext. 250Ω), Voltage
Display Range	As per Table-1
Accuracy	±0.25% of FS ±1 Count for TC, RTD input ±0.1% of FS ±1 digit 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 / 0-10 V
Sensor Burnout current	0.25uA
RTD excitation current	0.166 mA Approx.
NMRR	> 40dB
CMRR	> 120dB
Temp-co	< 100ppm for Input to Display < 150ppm for Input to retransmission output
Input Impedance	> 1MΩ (Voltage) / 250Ω (Current)
Max Voltage	20V DC

Display and Keys

Process Value	4-Digit, 7-Segment, Red, Character height of 0.56"(SV: 0.4") / 0.8" (SV: 0.56")
Set Value	4-Digit, 7-Segment, Green Character height of 0.4"(PV: 056") / Red Character height of 0.56" (PV: 0.8")
Status Indication	Relay, Communication, A/M & SSR
Keys	Enter, A/M, Increase, Decrease

Output

Control Output

Control Type		On/Off, P, PI, Auto tune PID
Manual offset		±50% of P band
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

Communication Output (Option)

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

Alarm Output

Relays	4 if Output Type is Linear(@Relay-1,2,3,4), 3 if Output Type is Relay or SSR(@Relay-2,3,4) Control relays are available as alarm outputs
Type	Single Change over (C, NO, NC)
Rating	5A @ 230V AC / 30V DC
Transmitter supply	24V DC (±10%) @26mA (Current limited)

Power Supply

Standard	85-260V AC/ 100-300V DC
Optional	18-36V DC
Power Consumption	<10 VA

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 @ 500 V DC between power terminals and grounding terminal

Physical

Gas Groups	IIA/IIB Single Compartment	IIC Single Compartment	IIA/IIB Dual Compartment
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)
Weight	2.6 Kgs	3 Kgs	6 Kgs
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 4 blind plugs		

Environmental

Operating temperature	0-55 °C
Storage temperature	0-80 °C
Humidity	30-95 % RH non-condensing

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 1 (AO1*)		Output Option 2 (AO2** or RS485)		Gas Group / Compartment		No. of Extra Glands		Relay		Display	
LC5296-XP-AT	X		XX		X		X		X		XX		X		X		X	
	1	E	U1	85-260V AC	1	Relay	N	None	N	None	1S	IIA/IIB Single Compartment	N	None	2	2 Relays	5	PV:0.56" SV:0.4"
	2	J		100-300V DC	2	SSR	1	4-20 mA	1	4-20 mA			1	1 extra gland	4	4 Relays		
	3	K	U2	18-36V DC	3	AO1 #	2	0-20 mA	2	0-20 mA	2S	IIA/IIB & IIC Single Compartment	2	2 extra glands			8	PV:0.8" SV:0.56"
	4	T			4	Relay - On/Off	3	1-5V	3	1-5V			3	3 extra glands				
	5	B					4	0-5V	4	0-5V	1D	IIA/IIB Dual Compartment	4	4 extra glands				
	6	R					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 M20 cable glands & 4 nos. of blind plugs

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