



TC Series PID Controllers

Fuzzy Logic Auto-Tuning PID Controller Models TC-96, TC-96H, TC-72, TC-96V, TC-48

Standard Auto-Tuning PID Controller Model TC-480

Fuzzy Logic Auto-Tuning PID Valve Controller Model TC-96A



TC-96

TC-96H

TC-72

TC-96V

TC-48

TC-480

TC-96A

The Texmate TC Series of PID Controllers can be used in a wide variety of precision process control applications including Temperature, Humidity, Pressure, Air-Conditioning, Gas Detection, DC Current, DC Voltage and more. With a wide variety of control, input, output and size options, their versatility is unmatched. Most models offer manual tuning or fuzzy logic auto-tuning of PID parameters and high accuracy at a very reasonable cost; the TC-480 is a cost effective, standard auto-tuning PID controller offering a control output bargraph and the shortest depth.

In addition, the TC-96A fuzzy logic auto-tuning PID Valve Controller provides specific functionality for Valve Open/Close applications and features a ruggedized power supply for challenging power quality areas.

Control Options	Display (all models)	Input Options	Output Options
PID – Auto PID - Manual PI PD P ON/OFF	Process Value Setting Value Auto Tune Mode LED Manual Tune Mode LED Alarm 1 and 2 Status LEDs Output 1 and 2 Status LED	Thermocouples RTD (PT-100) DC Current (e.g., 4-20mA) DC Voltage (wide range)	Relay (NO, NC operation programmable) SSR Drive 4-20mA DC Voltage (wide range)

Ordering Information

Case (mm)		Code	Input	Code	Control Output 1	Code	Control Output 2	Code	Comm.	Code	Power Supply	Code	Protection	Code
48x48x55	480		T/C	TD	Relay	RL	Alarm1**	AB	None	N	100-240VAC, 50/60Hz	HV	IP 63**	3
48x48x100	48		RTD (PT100)	RT	SSR*	SR	Relay	RL	RS-485	RS	24VDC**	VD	IP 65**	6
72x72x80	72		0-60mVDC**	MV	4-20mA*	MA	None*	N	Master*	MA	24V AC 50/60Hz, 19-36VDC	LV	**TC-96A AND TC-480 ONLY	
96x96x80	96		0-10VDC***	VV	Voltage*	LV	SSR*	SR	Slave*	SL	100-270VAC, 50/60Hz*	RG		
48x96x80	96H		0-24mA*	MA	Other**	OT	4-20mA*	MA	*NOT FOR TC-96A, TC-480					
96x48x80	96V		**TC-480: +/-60mVDC		Alarm2**	AA	Voltage*	LV	**TC-96A ONLY					
96x96x80	96A		***TC-480: +/-10VDC		**TC-480 ONLY		Retransmission*	RT	**TC-480 ONLY					
WxHxD (mm)			*NOT FOR TC-96A		*NOT FOR TC-96A		**TC-480 ONLY		*NOT FOR TC-96A					

Standard Features			TEXMATE PID METERS (✓ = Available, ✗ = Not Available)						
			TC-480	TC-48	TC-72	TC-96H	TC-96V	TC-96	TC96A
PID Control	Fuzzy Logic Auto-Tune PID Parameters		✗	✓	✓	✓	✓	✓	✓
	Standard Auto-Tune PID Parameters		✓	✗	✗	✗	✗	✗	✗
	Manually Tune PID Parameters		✓	✓	✓	✓	✓	✓	✓
Input ⁷ (Select one when ordering)	Thermocouple	J, K, T, E, B, R, S, N, C	✓	✓	✓	✓	✓	✓	✓
	PT-100 (RTD)	PT-100 (DIN, JIS)	✓	✓	✓	✓	✓	✓	✓
	Linear Current Range	0-24mA (4-20mA)	✓	✓	✓	✓	✓	✓	✓
	Linear Voltage - Unipolar Range	0-60mVDC, 0-10VDC	✗	✓	✓	✓	✓	✓	✓
	Linear Voltage - Bipolar Range	±60 mVDC, or ±10 VDC	✓	✗	✗	✗	✗	✗	✗
Control Output 1 (select one when ordering)	Relay	NO, 240VAC, 10A, resistive	✗	✓	✓	✓	✓	✓	✓
	Relay	NO, 240VAC, 5A, resistive	✓	✗	✗	✗	✗	✗	✗
	SSR Drive Voltage ¹	0-24VDC, 1sec pulse	✓	✓	✓	✓	✓	✓	✓
	Current Loop ²	4-20mA	✓	✓	✓	✓	✓	✓	✓
	Linear Voltage ³	Adjustable, 0-50mV, 0-10V	✗	✓	✓	✓	✓	✓	✓
	Linear Voltage (limited) ³	Adjustable 0-10V	✓	✗	✗	✗	✗	✗	✗
	Other		✓	✗	✗	✗	✗	✗	✗
Alarm 1	Relay	NO, 240VAC, 5A, resistive ⁶	✓	✓	✓	✓	✓	✓	✓
Alarm 2 ^④	Relay	NO, 240VAC, 5A, resistive ⁶	✗	✓	✗	✓	✓	✓	✓
Power Supply (Select one when ordering)	AC Standard	100-240VAC (±10%), 50/60Hz	✓	✓	✓	✓	✓	✓	✗
	Low Voltage DC Only	24VDC	✓	✗	✗	✗	✗	✗	✗
	Low Voltage	24V AC 50/60Hz, 19-36VDC	✗	✓	✓	✓	✓	✓	✗
	AC Rugged	100-270VAC (±10%), 50/60Hz	✗	✗	✗	✗	✗	✗	✓
Indicators (Front Panel)	Process Value (PV)	7-Seg LED, Red, 4 Char.	✓	✓	✓	✓	✓	✓	✓
	Setting Value (SV)	7-Seg LED, Green, 4 Char.	✓	✓	✓	✓	✓	✓	✓
	Control Output Percentage (OP)	10-Seg LED Bargraph, Red	✓	✗	✗	✗	✗	✗	✗
	Alarm 1 (A1) / Alarm 2 (A2)	LED, Red	✓	✓	✓	✓	✓	✓	✓
	Control 1 (C1) / Control 2 (C2)	LED, Red	✓	✓	✓	✓	✓	✓	✓
	Auto Tuning Mode (AT)	LED, Red	✓	✓	✓	✓	✓	✓	✓
	Manual Tuning Mode (MA)	LED, Red	✓	✓	✓	✓	✓	✓	✓
Controls (Front Panel)	SET Key	Button	✓	✓	✓	✓	✓	✓	✓
	Up Key	Button	✓	✓	✓	✓	✓	✓	✓
	Down Key	Button	✓	✓	✓	✓	✓	✓	✓
	Shift Key	Button	✓	✓	✓	✓	✓	✓	✓
24VDC Excitation	Output, Rear Panel	50mA max. current	✗	✗	✓	✓	✓	✓	✓
	Output, Rear Panel	25mA max. current	✓	✗	✗	✗	✗	✗	✗
Optional (OPT) Features									
Control Output 2 (select one when ordering)	None		✓	✓	✓	✓	✓	✓	✓
	Alarm 1		✓	✗	✗	✗	✗	✗	✗
	Relay	NO, 240VAC, 10A, resistive	✗	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ
	SSR Drive Voltage ¹	0-24VDC, 1sec pulse	✗	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ
	Linear Voltage ³	Adjustable, 0-50mV, 0-10V	✗	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ
Retransmission	Current Loop ²	4-20mA, PV or SV	✗	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ
System	None		✓	✓	✓	✓	✓	✓	✓
Communication (select one when ordering)	RS-485	MODBUS RTU	✓	✓	✓	✓	✓	✓	✓
	Master (RS-485)	MODBUS RTU	✗	✓	✓	✓	✓	✓	✓
	Slave (RS-485)	MODBUS RTU	✗	✓	✓	✓	✓	✓	✓

¹ 250 ohm minimum load (TC-480: 1.2 Kohm minimum)

² 600 ohm maximum load

³ 600 ohm minimum load

^④ Alarm 2 can be set to act as Control Output 2 using meter programming.

Ⓢ Output2 and 4-20mA Retransmission are mutually exclusive, choose only one of the two.

⁶ For Alarm relays, NC (Form B) operation can be simulated using meter programming.

⁷ For TC-480 only, Linear input is selectable via menu. For all other models, Linear input is specified at order.

Texmate, Inc.
450 State Place, Escondido, CA 92029
Tel: +1 760 598 9899, Fax: 1-760-598-9828
USA: 1-800-TEXMATE (839-6283)
Email: sales@texmate.com
Web: www.texmate.com
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Ratings (TC-480 Specific)		
Power Supply	Consumption	5VA maximum (4VA max.)
Input Accuracy	Thermocouple	+/-1°C (+/- 2°C for B, R, S, N, C)
	RTD	+/-0.2°C
	Current (linear) range	+/-20µA (+/-4µA)
	Voltage (linear) low range	+/-3µV (+/-10µV)
	Voltage (linear) high range	+/-500µV (+/-2mV)
Sampling Time		0.25sec (0.10sec)
Environmental	Operating Temperature	0-50°C
	Operating Humidity	0-90%RH, noncondensing (0-85%RH)
	Storage	-25 - 65°C, noncondensing
Control Method	Proportional band	0.0 - 300.0 % F.S.
	Integral time	0 - 3600sec (0-3000sec)
	Derivative time	0 - 900sec (0-1000sec)
	Hysteresis	0.0 - 200.0 or 0.0 -2000 (0.0-999.9 or 0-9999)
	Cycle Time	0 - 100sec (0-60sec)
	Weight	TC-480: 100g TC-48: 125g TC-72: 200g TC-96H: 215g TC-96V: 215g TC-96: 280g TC-96A: 280g