

DIGITAL TEMPERATURE CONTROLLER
TTM-509

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High Advanced Versatile Digital Controller with Various Functions & Multiple Inputs

Features

●Dual Channels with Multiple Inputs

Thermocouple, R.T.D., Voltage & Current Input are selectable respectively for PV1 & PV2 by front key. 4 wired R.T.D. is selectable in PV1, and Potential meter is available in PV2.

●Super speed sampling time & Accuracy

Sampling time 0.05sec with $\pm 0.1\%$ accuracy is realized.

●Dual Channels with Variety of Controls

2ch control, Cascade control, Remote control & Positioning proportional control is selectable when selected 2ch type.

●Communication (RS-485 & RS232C)

TTM series communication protocol and Modbus protocol are applicable.

●Infrared Communication Function

Data communication can be achieved with wireless by using an infrared communication.

●Data Logger Function

Data logger function using SD card is equipped.

●Standardization of Conformity

UL, CUL, CE & IP66 approved.

●Inheritance of Special Functions from Past TTM series

Special functions such as Self-Tuning, Auto-Tuning, Manual Control, Blind Function, Priority Display, Timer Function, Dogwatch and so on are inherited into TTM-509.

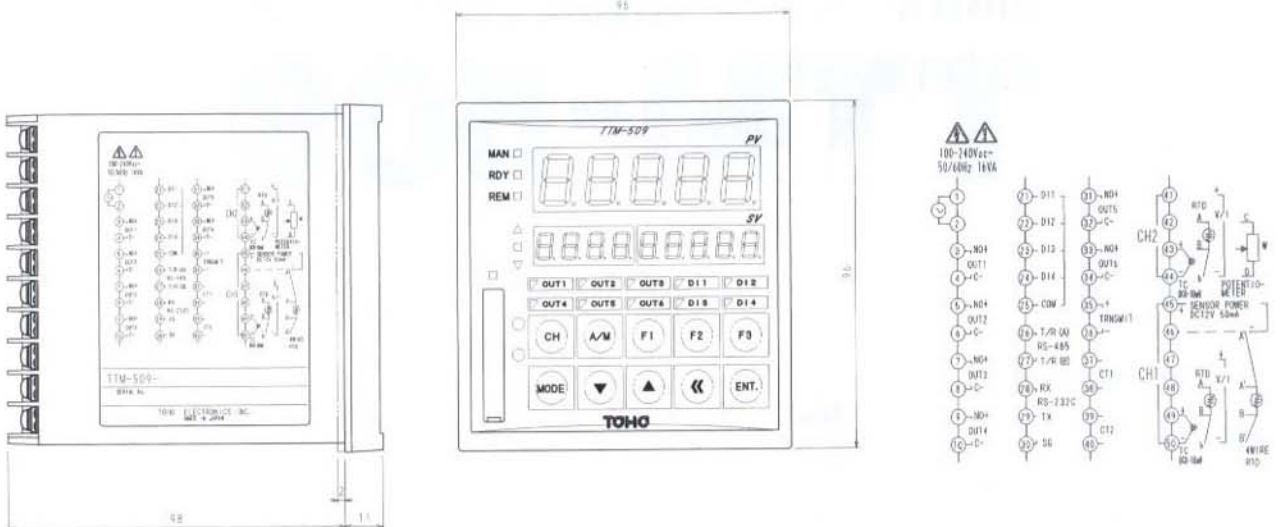
Front Panel



Key Operation

MAN	Monitor for Main Power	DI3	Light for DI operation
RDY	Light for Ready operation	DI4	Light for DI operation
REM	Light for Remote Function	CH	CH key for changing Channels
OUT1	Output monitor output1	A/M	A/M key for shifting Auto/Manual
OUT2	Output monitor output2	F1	Function key
OUT3	Output monitor output3	F2	Function key
OUT4	Output monitor output4	F3	Function key
OUT5	Output monitor output5	MODE	MODE key for shifting display
OUT6	Output monitor output6	▼	Down key
PV	Indication for PV, parameters e.t.c.	▲	Up key
SV	Indication for SV, parameters e.t.c.	<<	Digit shift key
DI1	Light for DI operation	ENT.	Enter key
DI2	Light for DI operation		

Dimensions & Wiring



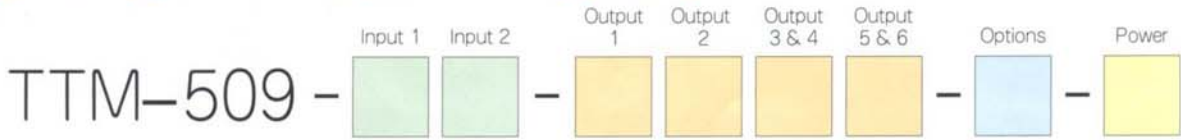
Standard Specifications

Input Type	Thermocouple	K, J, R, T, N, S, B	
	R.T.D.	Pt100, JPt100, Pt1000	
	Voltage	0-1VDC, 0-5VDC, 1-5VDC, 0-10VDC, 0-10mVDC,	
	Current	4-20mADC	
	Potential Meter	135Ω	
	4 wired R.T.D.	Pt100	
Control Output	Relay Contact	250VAC, 3A (Load resistance) 1a contact	
	SSR Drive Voltage	0-12VDC (Load resistance: 600Ω or more)	
	Open Collector	24VDC, 100mA	
	Voltage	0-1VDC, 0-5VDC, 1-5VDC, 0-10VDC (Load resistance: 1KΩ or more)	
	Current	4-20mADC (Load resistance: 600Ω or less)	
	Auxiliary Output	Max. 4 points (Output 3-6 common), Relay Contact, Open Collector	
Control Method	ON/OFF Control (Normal)	Control Sensitivity	0-999 or 0.0-999.9°C
	ON/OFF Control (Reverse)		
	PID Control Type A (Normal)	Proportional band (P1)	0.1-200.0% of setting limiter span
	PID Control Type A (Reverse)	Proportional band (P2)	0.10-10.00 times (Times per P)
	PID Control Type B (Normal)	Integral time (I)	1-3600 sec (0: OFF)
	PID Control Type B (Reverse)	Deviative time (D)	1-3600 sec (0: OFF)
	Self Tuning PID (Normal)	Cycle time (T)	1-120 sec
	Self Tuning PID (Reverse)	Dead band (DB)	-100.0+100.0 or -100+100(°C)
Sample Time	0.05 sec		
Indication Accuracy	Thermocouple	K, J, T, E: ±0.1% or ±0.5°C, R, S, B, N, U, L: ±0.1% or ±1.0°C, WRe5-26: ±0.2% or ±1.0°C, PR40-20: FS±0.5%, PLΓ : ±0.1% or ±0.5°C	
	R.T.D.	±0.15 or 0.5°C	
	Voltage & Current	±0.1% of FS ± 1digit	
	Potential Meter	±0.5% of FS ± 1digit	
Memory Element	EEPROM		
Voltage Source	100VAC-240VAC (50/60Hz)		
Weight	800g or less		
Power Consumption	Less than 10VA (240VDC)		
Operating Condition	0-50°C, 20-90%RH (under non-condensation)		
Storage Condition	-25-70°C, 5-95%RH (under non-condensation)		

Option

Transfer Output	Voltage Output	0-1VDC, 0-5VDC, 1-5VDC, 0-10VDC (Load resistance: 1KΩ or more)	
	Current Output	4-20mADC (Load resistance: 600Ω or less)	
CT Input	Setting Range 0-30A(ON)/0-100A(OFF), Accuracy ±5% (Setting resolution 1A)		
Event Input	DI 4 points (1-4 Common)	SV/SV2	
		Auto/Manual	
		Run/Ready	
		Normal/Reverse Action	
		Normal (SV2)/Reverse (SV) Action	
		Timer, Start/Reset	
		8 bank/16 bank	
Communication	RS-485	System	2-line system
		Parameter	BBC check or not, 7 or 8 bit data
		Protocol	TOHO protocol or MODBUS
		Speed	4800/9600/19200/38400bps
		Distance	500m
	RS-232C	System	3-line system
		Parameter	BBC check or not, 7 or 8 bit data
		Protocol	TOHO protocol or MODBUS
		Speed	4800/9600/19200/38400bps
		Distance	15m

Ordering Information (Model Configuration)



Input 1	0	Thermocouple, R.T.D., Voltage, Current Multipul Input				
	1	4 wired Pt100				
Input 2	N	Nil				
	0	Thermocouple, R.T.D., Voltage, Current, Potential Meter Multipul Input				
Output 1	0	Nil				
	1	Relay Contact				
	2	SSR drive voltage 12VDC				
	3	Open collector				
	4	Voltage 0-1VDC				
	5	Voltage 0-5VDC				
	6	Voltage 1-5VDC				
	7	Voltage 0-10VDC				
	8	Current 4-20mADC				
Output 2	0	Nil				
	1	Relay Contact				
	2	SSR drive voltage 12VDC				
	3	Open collector				
	4	Voltage 0-1VDC				
	5	Voltage 0-5VDC				
	6	Voltage 1-5VDC				
	7	Voltage 0-10VDC				
	8	Current 4-20mADC				
Output 3 & 4	0	Nil				
	1	Open collector				
	2	Relay Contact				
Output 5 & 6	0	Nil				
	1	Open collector				
	2	Relay Contact				
Options (Plural options can be selected.)		Nil				
	0	Communication (RS-485/RS-232C)				
	1	CT1 & CT2 Input Mesurement Range: 0-50A				
	2	CT1 & CT2 Input Mesurement Range: 0-120A				
	3	Event Input				
	4	Infrared Communication				
	5	Sensor Voltage Drive				
	6	Data logger Function				
	7	Transfer Output 0-1VDC	8	Transfer Output 0-5VDC	9	Transfer Output 1-5VDC
	A	Transfer Output	B	Transfer Output		
Power	0	100-240VAC				

※Please refer to this table for appropriate specifications when placing order.