

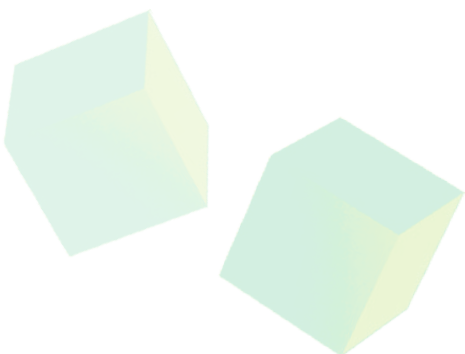


TEMPERATURE CONTROLLERS



Temperature Controller

Product Selection Chart - Temperature Controllers



Temperature Controller

- Universal Input
- Lower Depth of 65mm
- Dual Line Eleven Segment Display with 15mm Height
- Configurable Output: Relay or SSR Drive
- °C & °F temperature unit selectable
- Ramp & Soak profile with Power Failure resumption mode
- RS 485 Communication
- IP 65 (For Front Panel)
- Multiple device programming with SD card support
- Rapid Set Point change feature
- Alarm Functionality
- Single/Dual acting PID controllers with 4 Control modes
- Auto-tuning PID with provision for Soft-Start



Ordering Information

Cat. No.	Description
TCS1T100	3 digit single display, RTD & thermocouple input, 10A SPDT relay or SSR
TCS2T100	3 digit dual display, RTD & thermocouple input, 10A SPDT relay or SSR
TCS4T2A0	4 digit dual display, RTD & thermocouple input, 5A SPST relay or SSR & 5A SPST relay with CT
TCS4T300	4 digit dual display, RTD & thermocouple input, 10A SPDT relay, SSR & 5A SPDT relay
TCS4U4A0	4 digit dual display, RTD, thermocouple & Analog input, 3 relay output 5A SPST, Analog output with CT
TCS4U50C	4 digit dual display, RTD, thermocouple & Analog input, 2 relay output 5A SPST, SSR & Analog output with Modbus
TCS4U40C	4 digit dual display, RTD, thermocouple & Analog input, 3 relay output 5A SPST, Analog output with Modbus
TCS4U5A0	4 digit dual display, RTD, thermocouple & Analog input, 2 relay output 5A SPST, SSR & Analog output with CT

Temperature Controller



Cat. No.	TCS1T100	TCS2T100	TCS4T2A0	TCS4T300
Display				
Display	3 Digit, Single display	3 Digit, Single display	4 Digit, Dual display	4 Digit, Dual display
Display Color	RED	White + Orange	White + Green	White + Green
Display Size	15mm	Upper Display : 15mm Lower Display : 7.7mm	Upper Display : 15mm Lower Display : 7.7mm	Upper Display : 15mm Lower Display : 7.7mm
LED Indications	Output 1, Autotune, (last Segment of SSD for AT,ST)	Output 1, Autotune	Output 1,2, Autotune, Timer	Output 1,2,3, Autotune, Timer
Programming method	Front Keys	Front Keys, SD card	Front Keys, SD card	Front Keys, SD card
Default Programming	SD card	SD card	SD card	SD card
Input				
Thermocouples (TC)	J, K, T, R, S	J, K, T, R, S	J, K, T, R, S	J, K, T, R, S
RTD	PT-100	PT-100	PT-100	PT-100
mV	-	-	0 to 60 & 12 to 60	0 to 60 & 12 to 60
Output				
Output 1	10A SPDT/ SSR (12Vdc,50mA)	10A SPDT/ SSR (12Vdc,50mA)	5A SPDT/ SSR (12Vdc,50mA)	10A SPDT/ SSR (12Vdc,50mA)
Output 2	-	-	5A SPST	5A SPDT
Communication, CT input & Sensor Supply				
CT input	-	-	Applicable	
Mechanical parameters				
Dimension (WXHXD) mm	48X48X65	48X48X65	48X48X65	48X48X65
Panel cutout	45X45	45X45	45X45	45X45
Indication Accuracy				
RTD	±0.5% of PV or ±3°C (Which ever is higher one),±1 digit at room temp			
TC	±0.5% of PV or ±2°C (Which ever is higher one),±1 digit at room temp			
Mounting	±0.5% of PV or ±3°C (Which ever is higher one),±1 digit at room temp			
Resolution				
TC : J,K,T (all TC)	1°C	1°C	0.1°C/ 1°C	0.1°C/ 1°C
TC: R & S	1°C	1°C	1°C	1°C
PT-100	1°C	1°C	0.1°C/ 1°C	0.1°C/ 1°C
mV	-	-	0.001	0.001
CT input	-	-	0.1	
Operating temperature	0 to 60°C	0 to 60°C	0 to 60°C	0 to 60°C
Relative humidity	85% RH	85% RH	85% RH	85% RH

Temperature Controller



Cat. No.	TCS1T100	TCS2T100	TCS4T2A0	TCS4T300
Power Supply Characteristics				
Supply Input	90 to 270 VAC/DC			
Frequency	47 to 63Hz			
Power Consumption (Aprox)	≈ 6VA @ 240V AC		≈ 8VA @ 240V AC	
Functional features				
Alarm functionality	-	-	Applicable	Applicable
Hour Meter	-	-	Applicable	Applicable
Dwell Timer	-	-	Applicable	Applicable
Control method	ON-OFF/PID	ON-OFF/PID	ON-OFF/PID	ON-OFF/PID
Controlling action	Heat/Cool	Heat/Cool	Heat/Cool/Heat-cool	Heat/Cool/Heat-cool
Tune method	Autotune/ Selftune			
Measurement Ranges				
J type	-199 to 750°C	-199 to 750°C	-199 to 750°C	-199 to 750°C
K type	-199 to 999°C	-199 to 999°C	-199 to 1350°C	-199 to 1350°C
T type	-199 to 400°C	-199 to 400°C	-199 to 400°C	-199 to 400°C
R & S	0 to 999°C	0 to 999°C	0 to 1750°C	0 to 1750°C
PT-100	-150 to 850°C	-150 to 850°C	-200 to 850°C	-200 to 850°C
C type	-	-	-	-
E type	-	-	-	-
B type	-	-	-	-
N type	-	-	-	-
L type	-	-	-	-
U type	-	-	-	-
W type	-	-	-	-
Compliance & certification				
Product standard	IEC 61326			
Certification	 			

Temperature Controller



Cat. No.	TCS4U4A0	TCS4U50C	TCS4U40C	TCS4U5A0
Display				
Display	4 Digit, Dual display	4 Digit, Dual display	4 Digit, Dual display	4 Digit, Dual display
Display Color	White + Green	White + Green	White + Green	White + Green
Display Size	Upper Display : 15mm Lower Display : 7.7mm	Upper Display : 15mm Lower Display : 7.7mm	Upper Display : 15mm Lower Display : 7.7mm	Upper Display : 15mm Lower Display : 7.7mm
LED Indications	Output 1,2,3, Autotune, Selftune,Timer	Output 1,2,3, Autotune, Selftune, Timer	Output 1,2,3, Autotune, Selftune,Timer	Output 1,2,3, Autotune, Selftune,Timer
Programming method	Front Keys, SD card	Front Keys, SD card	Front Keys, SD card	Front Keys, SD card
Default Programming	SD card	SD card	SD card	SD card
Input				
Thermocouples (TC)	J, K, T, R, S, C, E, B, N, L, U, W			
RTD	PT-100			
mV	0 to 60 & 12 to 60			
Voltage (V)	0 to 5, 0 to 10			
Current (mA)	0 to 20, 4 to 20			
Output				
Output 1	5A SPST	5A SPST	5A SPST	5A SPST
Output 2	5A SPST	5A SPDT	5A SPST	5A SPDT
Output 3	5A SPST	SSR (12Vdc,50mA)	5A SPST	SSR (12Vdc,50mA)
Output 4 (Voltage,Current)	0 to 10/0 to 5/0 to 20/ 4 to 20	0 to 10/0 to 5/0 to 20/ 4 to 20	0 to 10/0 to 5/0 to 20/ 4 to 20	0 to 10/0 to 5/0 to 20/ 4 to 20
Communication, CT input & Sensor Supply				
RS-485	-	Applicable	Applicable	-
CT input	Applicable	-	-	Applicable
Mechanical parameters				
Dimension (WXHXD) mm	48X48X65	48X48X65	48X48X65	48X48X65
Panel cutout	45X45	45X45	45X45	45X45
Indication Accuracy				
RTD	±0.5% of PV or ±2°C (Which ever is higher one),±1 digit at room temp			
TC	±0.5% of PV or ±2°C (Which ever is higher one),±1 digit at room temp			
Mounting	±0.5% of PV or ±3°C (Which ever is higher one),±1 digit at room temp			
Resolution				
TC : J,K,T (all TC)	0.1°C/ 1°C	0.1°C/ 1°C	0.1°C/ 1°C	0.1°C/ 1°C
TC: R & S	0.1°C/ 1°C	0.1°C/ 1°C	0.1°C/ 1°C	0.1°C/ 1°C
PT-100	0.1°C/ 1°C	0.1°C/ 1°C	0.1°C/ 1°C	0.1°C/ 1°C
mV	0.001	0.001	0.001	0.001
Analog (Voltage,Current)	0.001	0.001	0.001	0.001
CT input	0.1	0.1	0.1	0.1
Operating temperature	0 to 60°C	0 to 60°C	0 to 60°C	0 to 60°C
Relative humidity	85% RH	85% RH	85% RH	85% RH

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Cat. No.	TCS4U4A0	TCS4U50C	TCS4U40C	TCS4U5A0
Power Supply Characteristics				
Supply Input	90 to 270 VAC/DC			
Frequency	47 to 63Hz			
Power Consumption (Aprox)	≈ 8VA @ 240V AC			
Functional features				
Alarm functionality	Applicable			
Ramp & Soak	Applicable			
Hour Meter	Applicable			
Dwell Timer	Applicable			
Control method	ON-OFF/PID			
Controlling action	Heat/Cool/Heat-cool			
Tune method	Autotune/ Selftune/ Adaptive tune			
Measurement Ranges				
J type	-199 to 750°C			
K type	-199 to 1350°C			
T type	-199 to 400°C			
R & S	0 to 1750°C			
PT-100	-200 to 850°C			
C type	0 to 2300			
E type	-200 to 750°C			
B type	149 to 1820			
N type	-200 to 1300°C			
L type	-200 to 600°C			
U type	-200 to 900°C			
W type	0 to 2300			
Compliance & certification				
Product standard	IEC 61326			
Certification	 			

EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2
Voltage Current & Fluctuations	IEC 61000-3-3
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Power Frequency Magnetic Field	IEC 61000-4-8
Voltage Dips Immunity Test (AC)	IEC 61000-4-11
Voltage Dips Immunity Test (DC)	IEC 61000-4-29
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

Safety test

Dielectric Strength (I/P & O/P)	IEC 60255-5
Impulse Voltage between I/P & O/P	IEC 60255-5
Single Fault	IEC 61010-01
Insulation Resistance	UL 508 > 100M Ohm
Leakage Current	UL 508 < 3.5mA

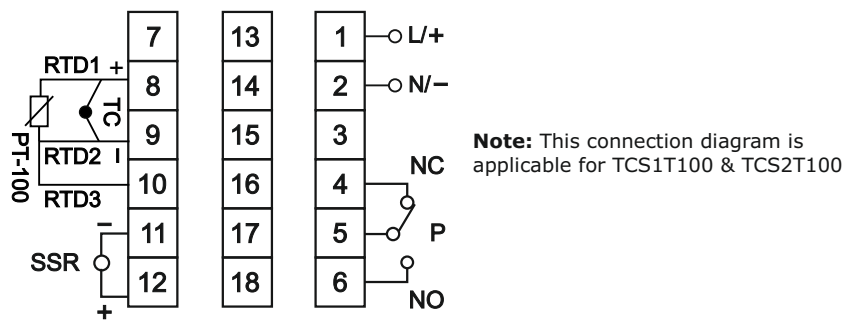
Environmental

Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

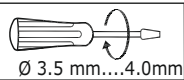
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CONNECTION DIAGRAM



TERMINAL TORQUE & CAPACITY

	0.6 N.m (5.3 Lb.in)
	1 x 4.0 mm ² Solid/Stranded Wire
AWG	1 x 20 to 10

MOUNTING DIMENSION (mm)

