



48mm Proportional Temperature Controllers

TCJ, TCK and TCPT

TECHNICAL FEATURES

✍	MICROPROCESSOR DIGITAL SET PROPORTIONAL CONTROL
✍	HIGH AND LOW USER SET ALARM INDICATION
✍	OUTPUT STATUS LED INDICATION
✍	PERMANENT RETENTION OF TEMPERATURE SETTING
✍	THERMOCOUPLE FAILURE PROTECTION
✍	CHOICE OF °F OR °C SCALES (SET AT MANUFACTURE)
✍	INDUSTRY STANDARD 48mm DIN CASE
✍	WIDE RANGE SUPPLY OR SINGLE VOLTAGES
✍	CHOICE OF 'K' AND 'J' THERMOCOUPLE OR PT100 INPUTS (SET AT MANUFACTURE)



TECHNICAL SPECIFICATION

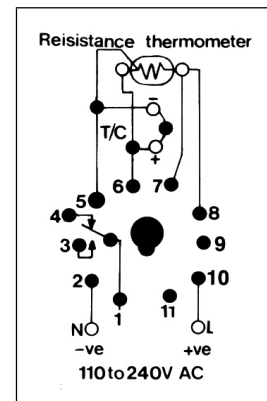
SUPPLY VOLTAGE(S)	24 to 230V, 120V, 230V AC 50/60Hz. 12V, 24V AC/DC
POWER CONSUMPTION	Approximately 4VA
CONTROL OUTPUT	One SPCO relay with contracts rated 5 amp 230V AC resistive.
HYSTERISIS	1 °C
PROPORTIONAL SPEED	Adjustable over the range 10 to 20 seconds
PROPORTIONAL BAND	Adjustable between ± 25 °C but not to exceed 10 % of the set point
SETTING ACCURACY	1 °C (0.1 °C for PT 100)
COLD JUNCTION COMPENSATION	Automatic, better than 0.1 °C per 1 °C
AMBIENT TEMPERATURE	-10 °C to 55 °C
HUMIDITY	35 to 85 % RH
THERMOCOUPLE PROTECTION	In the event of thermocouple failure the relay de-energizes
TEMPERATURE RANGES	TCJ 0 to 750 °C or 32 TO 1382 °F TCK 0 TO 1200 °C or 32 to 2192 °F TCPT 0 to 100 °C or 32 to 212 °F
SCALE INDICATOR	°F or °C Set at manufacture
SEALING PROTECTION	Front Panel IP41 Housing IP41 Terminal IP00
OPTION DESCRIPTION	RA –Reverse Acting: Can be added to reverse the relay action i.e Energise if the temperature rises ABOVE the set point. (Flame failure applications).

ORDERING DETAILS

TCJ	°F	OPTION
TCK	°C	
TCPT		

SEE PAGES 7-8 FOR BASES AND ACCESSORIES

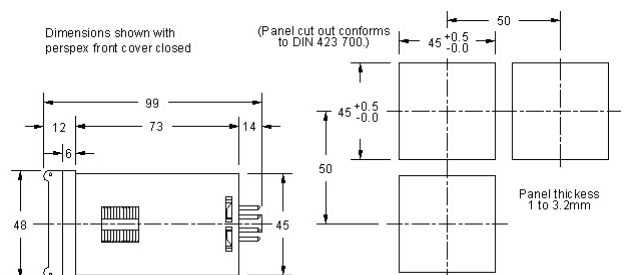
CONNECTION DETAILS



PROTECTION AND DIAGNOSTICS

In event of:	Display indicates	Ouput
Permanent memory failure	Err 0	De-energises
Invalid data stored in the memory	Err 1	De-energises
Thermocouple failure/bad connection	Err 2	De-energises
A/D converter failure	Err 3	De-energises
Temperature over max. range	Err 4	De-energises

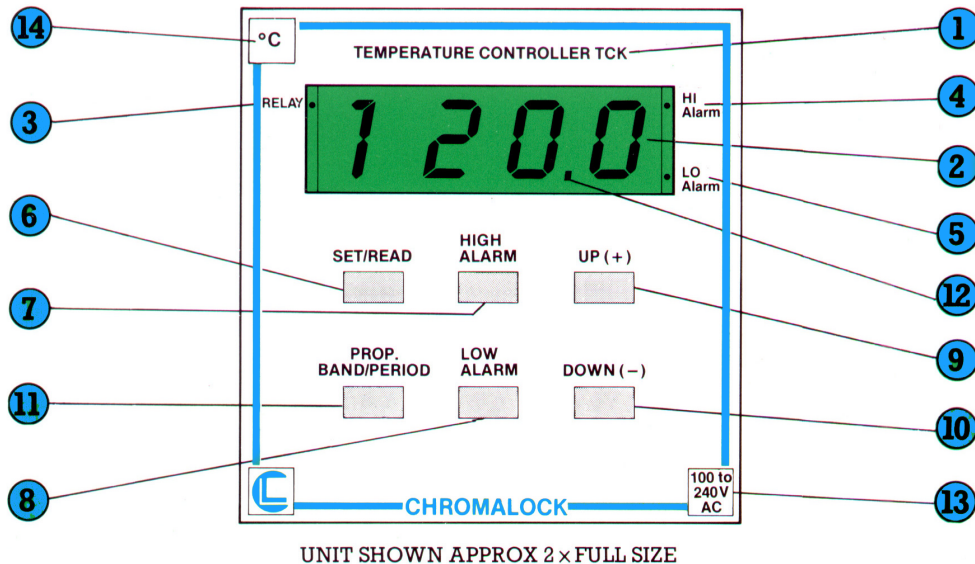
CASE DIMENSIONS



Dimensions in mm



OPERATIONAL FEATURES



N Normal Mode: After power supply is on, current temperature value is shown on the display and the controller is in normal operating mode. To view set temperature, prop.band, high alarm or low alarm, press buttons 6,11,7 or 8 respectively

- 1) Model name and reference, TCJ is type J, TCK is type K, thermocouple input and TCPT is platinum 4 wire resistance temperature device (100 Ohms at 0 °C
- 2) High visibility 4 digit green L.E.D. display shows measured temperature in normal mode or appropriate settings when programming. Display flashes in alarm conditions
- 3) L.E.D. illuminates when output relay is energised
- 4) L.E.D. illuminates when temperature rises above high alarm setting (see also 7). Main display will also flash top segments
- 5) L.E.D illuminates when temperature drops below low alarm setting (see also 8) . Main display will also flash lower segments
- 6) SET/READ button is used to read or set temperature setting as described in N or S
- 7) HIGH ALARM button is used to read or set high alarm level as described in N or S
- 8) LOW ALARM button is used to read or set low alarm level as described in N or S

S Set-Up Mode: In order to enter setting up procedure press Up 9 or Down 10 button and one other function button to display last setting, then use buttons 9 or 10 to change setting. When desired setting is reached use the following method to exit to normal mode:

- (a) Press buttons 6 and 7 simultaneously to store new settings in permanent memory
- (b) Press buttons 11 and 8 simultaneously or wait for a short delay to store new settings in temporary memory
- 9) UP button is used to increment setting as described in S
- 10) DOWN button is used to decrement setting as described in S
- 11) Proportioning control can be set to $\pm 25^{\circ}\text{C}$ but not to exceed 10% of the set point. The output relay will cycle ON and OFF every 10 to 20 seconds (depending on prop. period setting) when temperature is between prop. setting and set point. Use set up mode to alter prop. band (relay indicator is off) whilst setting prop. period, relay indicator is on (setting of band and period are alternating functions). If prop. band is set to 0, unit provides "ON-OFF" control only
- 12) Decimal point L.E.D. indicating 0.1 °C accuracy for TCPT
- 13) Supply voltage label
- 14) Scale indicator label °C or °F