



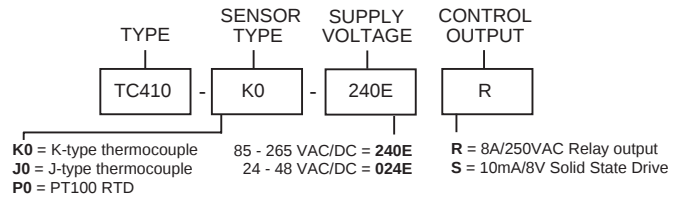
Temperature Controller

Auto-tune PID or ON/OFF control
No Alarms, Fixed Sensor type
3 digit dual display
Relay control

TC 410



ORDERING CODE



Note: TC410 supersedes TC400

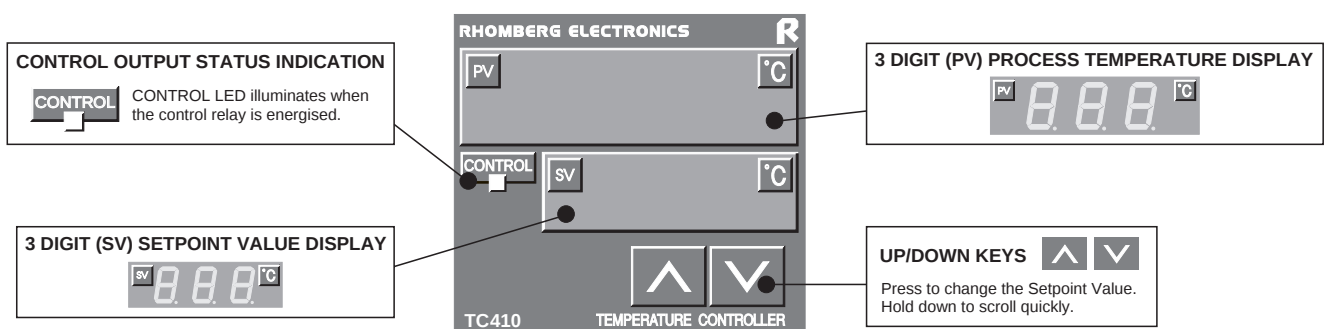


THERMOLINE

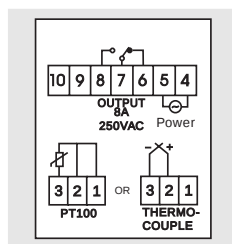
Features and Benefits

- User friendly installation and operation.
- PID algorithm control with auto-tuning of the process which ensures precision control.
- ON/OFF control operation with a programmed hysteresis value to prevent the control relay from rapidly switching on and off.
- An 8 Amp relay output (Solid State Relay (SSR) drive output available on special order).
- Programming DIP switches at the rear ensure that the operational modes are secured once the controller is installed.
- Selectable PID or ON/OFF control.
- Analogue and digital input filtering.
- Full autotune PID control.
- A plug connector system that allows quick and easy connections.
- Selectable relay cycle period for precision control of fast or slow processes.
- Dual display for simultaneous indication of both process temperature and setpoint.
- Multi-voltage (24 - 48V AC/DC, or 85 - 265V AC/DC).
- Sensor failure detection and display of out of range error conditions which enables quick diagnosis of process or sensor faults.
- Digitally calibrated.

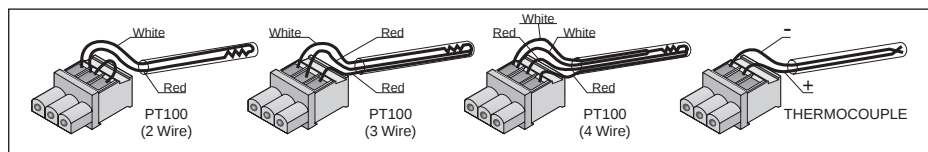
Description of Controls



■ Wiring and Connection



The following figure illustrates how the thermocouple or PT100 is connected.



■ Function Highlights

PID CONTROL WITH PROPORTIONAL BAND AUTO-TUNE

The Thermoline TC410 has been designed with a rugged and proven PID algorithm.

ON/OFF CONTROL WITH HYSTERESIS

A hysteresis parameter is programmed to prevent the control relay from rapidly switching on or off. This is set in degrees and is the difference between when the output relay energises and de-energises.

PROGRAMMABLE RELAY CYCLE TIME

The Thermoline TC410 has programmable relay cycle times.

PROGRAMMING DIP SWITCHES

The DIP switches at the rear ensure that the operational modes are secured once the controller is installed.

■ Technical Specifications

GENERAL SPECIFICATIONS	
Operating Temperature	0 - 50°C
Humidity	5 - 85% non-condensing
Storage Temperature	-20°C to 70°C
Protection Class (Front Panel)	IP54
Protection Class (Rear Panel)	IP30
Connection	Plug-connector
Weight	250g
Standards	CE
Creepage Distance	VDE 0110 (Group C 250V) IEC 664/664A VDE 0435
Power Supply	24 - 48V AC/DC $\pm$ 10% 85 - 265V AC/DC
Power Consumption	Less than 3VA

INPUT SPECIFICATIONS									
OPERATING TEMPERATURE	SENSOR TYPE (specify when ordering)								
	PT100	E	J	K	R	S	T	B	N
UPPER LIMIT	800	950	750	999	999	999	380	999	999
LOWER LIMIT	-99	-99	-99	-99	-40	-40	-99	-99	-99

CONTROLLER SPECIFICATIONS	
Setting Accuracy	1%
Linearisation Accuracy	$\pm 0.3\%$
Cold Junction Tracking	0.05°C per °C
Sampling Period	70ms
Control Method	PID or On/Off
Control Relay Cycle Period	2/25 secs
Hysteresis	0-99°C

EMC PROTECTION RATING	
Radiated Susceptibility	IEC 801-3, Class 3
Radiated Emission	CISPR11, Class B
Conducted Susceptibility	IEC 255-22-1, Class II
Conducted Emission	CISPR11, Class B

DISPLAY SPECIFICATIONS	
PV Display Type	3 x 10mm, red
SV Display Type	3 x 7mm, red or green
Resolution (PV, SV)	1°C
Temperature Display Range	-99 to 999°C

OUTPUT SPECIFICATIONS (specify when ordering)	
Control Output (Relay)	250V AC, 8A, SPDT
Control Output (SSR Drive)	10mA at 8V