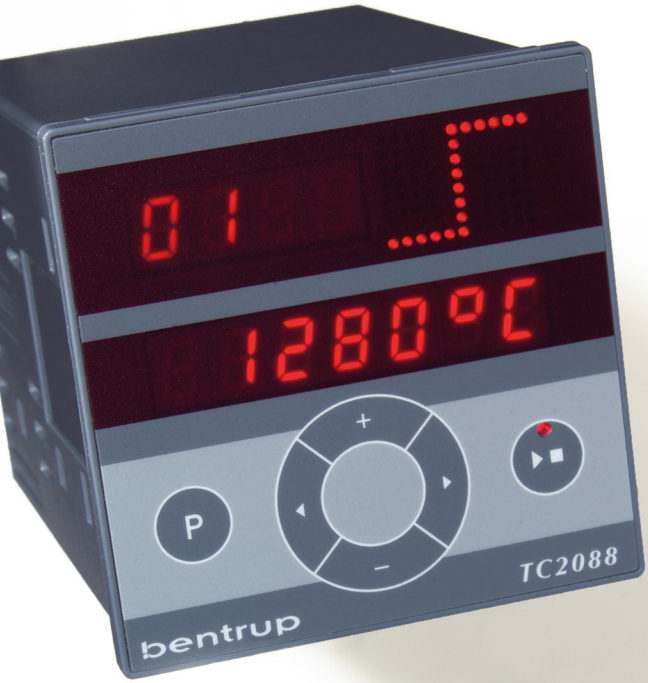
The Compact Panel Mounting Controllers from bentrup. Perfection from the Market Leader.



Built in Perfection

The popular compact series from bentrup for panel mounting. Technical perfection meets simple operation. The bentrup panel mounting controllers TC20xx provide easy handling at highest engineering standards. Depending on your application 4 different models are available, starting with a simple temperature controller up to a multi-segment programme device. Up to 8 switching outputs, analogue signal outputs and miscellaneous digital input/output interfaces allow integration even in complex control systems.

Our controllers are known for their easy operation giving us an major advantage versus similar products available today. The compact size (front panel DIN size 72x72mm, depth 110mm) allows space saving mounting but still providing sufficient space for a convenient user interface. The bentrup panel mounting controllers TC20xx: Precision, innovation and operation safety bentrup is known for.

TC 2044

TC 2066

TC 2088

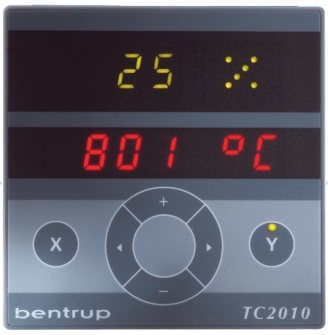
TC 2010

TC 2010 – Generic Controller (operation modes temperature control, policeman, zone slave etc.)
TC 2044 – Easiest operation for Classic Ceramics
TC 2066 – Flexible programme controller for all Ceramic Applications
TC 2088 – Innovative all-purpose controller for Glass and Ceramics

bentrup

Available Models

	TC 2010	TC 2044	TC 2066	TC 2088
Application	Generic device for temperature control, policeman, temperature reading, zone slave (e.g. on TC2088 master), signal conversion (e.g. 0-1400°C thermocouple to 4-20mA)	highly operational simplified programme controller for ceramic applications, very easy to learn and understand, more advanced alternative to analogue controls	compact and powerful programme controller for all applications in ceramics, flexible firing curve, adjustable programmes, very easy to use, best buy for feature and price	compact and powerful programme controller for applications requiring a fully flexible firing curve (e.g. glass fusing, D & R) etc.; multiple heating, dwelling and cooling segments
Temperature Profile	Applications without temperature profile: When operating as temperature controller adjustable heat up ramp and dwell. In signal conversion mode complex signals (e.g. from a circone oxyde probe) are displayed and processed. Slaved zone operating mode	First ramp selectable 60/120/240/360/480 °C/h or full-on (100%) to fixed setpoint 580°C, Second ramp full-on (100%) to adjustable top temperature 400°C-1320°C (in 5°C steps), Dwell adjustable (0/10/20/30/60 min)	Delay Start 0:00-10:00 hours, First ramp 5°C/h to 999°C/h or full-on to adjustable first setpoint, Second ramp 5°C/h to 999°C/h or full-on to adjustable second setpoint, Dwell 0:00-10:00 hours, Cooling Ramp 5°C/h to 999°C/h	Any shape of the firing courve: Delay Start 0:00-10:00 hours, up to 9 ramps (as heat up, dwell or cooling ramp), on each ramp adjustable time (0:00 to 10:00 hours) and temperature (20°C to maximum kilns temperature)
Programmes	-	1 (set programme will be saved)	6 user definable programmes	3 user definable programmes Option -e: 300 programme segments
Displays	7-digits LED green (setpoints) 4-digits LED red and 8x11 LED multicolour dot matrix (process value and status display)	4-digit LED, firing curve	4-digits LED, firing curve, outputs	6-digits LED, 2-digits segment number, 8x11 LED dot matrix for segment profile



Common Technical Features and Specifications

		Base Model	Options
General	modular microprocessor based compact controller with flexible configurable controller design. Intelligent user guidance. Self validation of all safety relevant components, error log of the 50 recent events (sensor failure, short circuit, power breakdown, user access etc.). Adaptive P/PI/PID controller with continuous auto tune. All electrical links pluggable with industrial style connectors (PHOENIX etc.)		
Electrical Data, Approvals, Mechanical Data	energy efficient power supply 85-264 V AC/DC (option 24V), power breakdown recovery feature, high level of active and passive EMC according to IEC801/4-IV, CE confirmity, panel mounting case made of industrial classified ABS plastic, front panel size 72x72mm (panel cut out 67x67mm), depth 103mm (115mm with connections), weight 220g (depending on options), fixation by stainless steel brackets (included)		
Analogue Inputs (Sensor Inputs)	configurable for thermocouples (S, R, K, J, B etc.), standardized signals for voltage (20mV/50mV/10V) or current (0-20mA, 4-20mA), resistance (0-500R, PT100 etc.) miscellaneous special signals (oxygen probes, flowmeter (square root) etc.), auto zero, internal or external CJC, accuracy 0.1%, resolution 16 bit	2	-
Digital Inputs (Process Control)	5/24V AC/DC to control process flow and activation/deactivation of various modes etc., electrically isolated	-	2/4/6 (option DI)
Digital Outputs (Switching Outputs)	relay outputs max. 8A/250V e.g. to directly drive contactors logic outputs (electrically isolated) to control solid states relays (SSR) by PWM	2 -	2/4/6 (option SW) 2/4/6 (option DO)
Analogue Outputs (Signal Outputs)	proportional signal output (electrically isolated) e.g. to drive thyristor power switches or for process values. Voltage 0-10V (load >200 ohms), current 0/4-20mA (load <600 ohms), accuracy 0.15% full scale, resolution 12 bit, overload/underload detection circuit	-	2/4/6 (option AO)
Communication Interfaces	RS232/RS422/RS485 interface for bentrup WinControl/WinConfig, published protocol USB interface ethernet interace	- - -	1 (option RS) 1 (option USB) 1 (option ETH)

Order Codes (Example): TC2088-S-4S W -2AO-RS
Panel mounting controller TC2088, pre-configured for type S thermocouple inputs, 2 additional switching outputs (total of 4), 2 analogue outputs, RS232/422/485 interface