TC S2

State of the Art

The high performance programme controller TC S2 and TC M2 combine in a unique way complex control features with user friendly design. The clear structured colour TFT screen provides an appealing user interface. Operation is learned in a minute.

TC S2 and TC M2 are modular structured control systems providing multiple control loops (e.g. multichannel kilns) and a fully flexible operating design. You can link and combine control loops (e.g. cascade control) or desgin a control logic according to the requirements of your complex application. The optional integrated PLC leaves no requirement open.

The user interface is configurable to ensure process values are displayed easy to understand. Configuration is done by bentrup WinConfig utility via RS485 or on the controller keypad. Real time log memory provides easy tracking of any operation events to comply to industrial demands. Optional TCP/IP interface and USB port for remote operation.
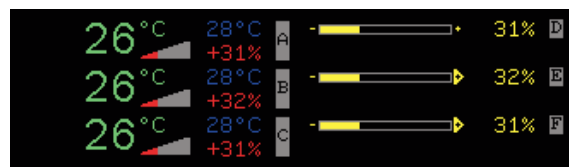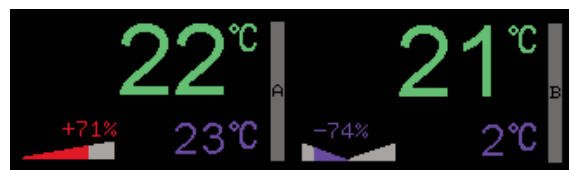
TC S2 is fitted in a 96 x 96mm DIN size panel mounting case providing space for up to 3 expansion boards. TC M2 comes in a 190 x 270mm stainless steel panel mounting case containing up to 5 expansion boards.

The bentrup TC S2 and TC M2: latest technology in compact shape combined with easy operation.

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State of the Art Controllers from bentrup.
Perfection for High End Applications

TC M2

TC S2 and TC M2 Technical Features and Specifications

		Base Model	Options
General Information	Single / multiloop programme controller for panel mounting with optional PLC. Modular expandable hardware with flexible configurable controller design. Bright contrast industrial style 3.5" TFT colour display (TC M2 5.7") 1/4 VGA resolution. Up to 99 programmes / 99 segments, multiple parameters per segment like events, flow, pressure etc.		
Technical Data	Non volatile event log (sensor failure, short circuit, power breakdown, user access etc.) and 48 hours data log for continuous process supervisory. Real time clock providing detailed log information for error tracking and recording. Self validation of all safety relevant components. Adaptive P/PI/PID controller with continuous auto tune. Optional PLC provides unlimited flexibility by accessing all status information of the controller (use tool MicroWin to create networks).		
Electrical Data, Ambient Requiements, Approvals,	Energy efficient power supply 85-264 V AC/DC (option 24V), max power dissapation 20W, power breakdown recovery feature, ambient temperature -10°C to 60°C, air humidity 10% to 90% non condensing, high level of active and passive EMC according to IEC801/4-IV, CE conformity. All electrical links pluggable with industrial style connectors (PHOENIX etc.)		
Mechanical Data (TC-S2)	Panel mounting case made of industrial classified ABS plastic, front panel size 96x96mm (cut out 92x92mm), depth 155mm (175mm with connections), weight 420g (depending on options), fixation by stainless steel brackets (included)		
Mechanical Data (TC-M2)	Stainless steel panel mounting case, front panel size 190 x 270 mm (cut out 171 x 251mm), depth 83mm, weight 850g (depending on options), fixation by stainless steel brackets (included)		
Analogue Inputs (Sensor Inputs)	programmable for thermocouples (S, R, K, J, B etc.), standardized signals 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 0.05%, resolution 17 bit, acquisition rate 8Hz (internal 16Hz), adjustable averaging and error compensation, *inputs electrically isolated (AI4)*	3 (TC only)	+ 4 (option AI4)
Digital Inputs (Process Control)	5/24V AC/DC to control process flow and activation/deactivation of various modes etc., electrically isolated, status detection and indication	-	+ 8 (option DIO8) + 3 (COMBI-A/B)
Switching Outputs	relay outputs max. 8A/250V e.g. to directly drive contactors	5	+ 8 (option SW8)
Digital Outputs	logic outputs 24V DC/0.5A electrically isolated, overload detection and protection	-	+ 8 (option DIO8)
PWM outputs	Pulse width modulation (PWM) outputs (electrically isolated) e.g. to directly drive solid state relays (SSR), 14V/60mA each, adjustable rate (1Hz to 10Hz) and activation pattern, intelligent overload and restart feature, error detection and indication	-	+ 4 (option PWM4) + 1 (option COMBI-B)
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 0.1% full scale, resolution 14 bit, programmable signal adaption, intelligent overload and restart feature, error detection and indication	-	+ 4 (option AO4)
Communication Interfaces	RS232/RS422/RS485 interface for bentrup WinControl/WinConfig, published protocol	1	-
	bentrup Fieldbus (RS485) for Master/Slave communication (TC-S2 can be operated as Master and Slave, user settable virtual control chains)	-	1 (option FB or COMBI-A)
	USB interface	-	1 (option USB)
	ethernet interface	-	1 (option ETH)

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