# New Generation

The professional series TC 500 is an entirely newly designed kiln controller setting new standards, using latest technologies. While our new programme controller simply designed and easy to use, it is actually a higly sophisticated multifunctional and multichannel

controldesign, error trace memory and serial PC link, have further advanced our leading position in this market.

The new professional series TC 500: High technology making handling easy.
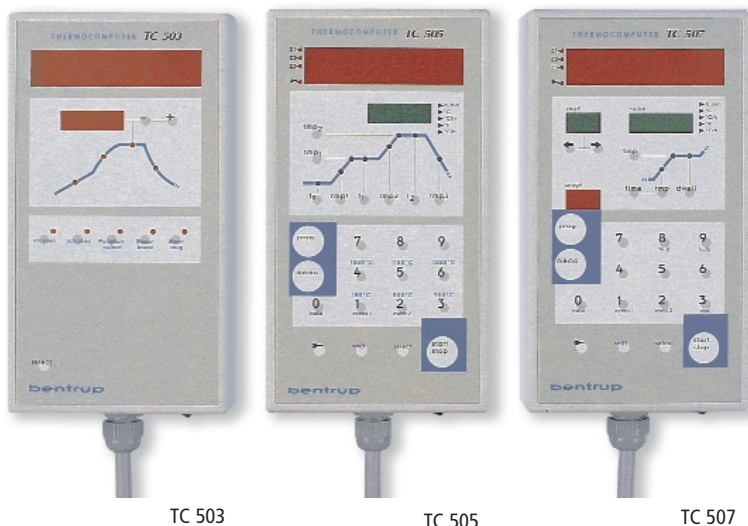


TC 503  TC 505  TC 507

instrument with extended input/output features.

The operation has become simpler by our use of additional displays and a more effective arrangement. We have once again taken our well known safety features to another leve.

The new features, such as the multi zone operation, entirely free settable

**TC 503: For a totally simply operation**

Just press one key – TC 503 does everything else. The TC 503 has 5 standard firing curves for drying, biscuit, porcellain, glaze and stoneware. The values for safe heatup and the dwell is perfectly adapted, the final temperature can be adjusted easily and are saved automatically. Permanent reading of final tempeature ensures protection against errors in entering programme temperature.

**TC 505: The new standard for the Ceramic**

All values of the firing curve can be changed easily and simpler. Range of values covers all applications for the ceramic. 30 firing curves can be saved as programmes. All values of interest can be displayed without interrupting the firing process. Optional multizone operation, all values and channels are shown automatically. Highest comfort in operation and entering values.

**TC 507: The all-in-one unit for glass and ceramic**

As TC 505, but enabling full flexibility of the firing curve shape. Up to 99 segments can be entered as you like enabling multiple heat up / dwell / cooling processes. Ramps can be entered as °C/h or time simultanously. Manual process control feature, multiple events etc. Up to 99 firing curves can be saved as programmes. The TC 507 succeeds the TC 405/30 and therefore is destined to be the standard in thermal glass processing.

**bentrup**

| model | TC 503 | TC 505 | TC 507 |
|---|---|---|---|
| description | Very simple operable controller on highest performance. 5 standard firing curves (drying, biscuit, porcellain, glaze, stoneware) with adjustable final temperatures (automatically saved) | High performance single- and multichannel controller for the ceramic. All values of the firing curve adjustable, can be saved as programmes. Easy operation by using large displays and keys arranged in smart order. | High performance single- and multichannel controller for all applications (glass, ceramic, metall, research), entirely design of the firing curve adjustable. 3 LE-Displays and large keypad for easy programming. |
| firing curve | preset firing curved for drying, biscuit firing, procellain, glaze and stoneware. Adjustable final temperature (saved automatically for next firing) | Delay start 0:00-99.59 hours, first ramp 1 to 999°C/h or full-on, first dwell (temperature/time adjustable), second ramp and second dwell adjustable as before, cooling ramp 1 to 999 °C/h or full-on | variable: delay start 0:00-99,59 hours, up to 99 segments, consisting of heat up / cooling ramp (entered as 1°C/h to 9999°C/h or simultanously (!)1 to 99.59 hours) and dwell (0:00 to 99:59 hours) |
| programmes | 5 programmes, final temperature adjustable | 30 programmes (6 fix, 24 adjustable) | 99 progs. (depending on no of segments) |
| readings | process temperature (6 digits), setpoint (4 digits), programme sketch  (LED) | process temperature (6 digits), setpoint (4 digits), units, zones and programme sketch (LED) | process temperature (6 digits), setpoint (4 digits), units, segment no. and programme no. (2 digits ea.), zones (LED) |
| multizone control | - | max. 3 zones (optional) | max. 3 zones (optional) |
| keyboard locking | - | • | • |
| power breakd. recovery | • | • | • |
| Power consumption and operation hours reading, programme link feature | • | • | • |
| weekly clock | • (optional) | • (optional) | • (optional) |
| computer interface | optional (RS232 / RS485) | optional (RS232 / RS485) | optional (RS232 / RS485) |
| signal inputs, accuracy | up to 3 signal inputs for thermocouples, thermoresistors, standard signals 0-5V/0-10V/0-20mA/4-20mA, configurable resolution of the inputs 40000 digits, non-linearity 0.05%, sampling rate internal 16 Hz resp. externally 4 Hz | | |
| control outputs | up to 4 switching control outputs (220V) or logic outputs (12V) electrically seperated), up to 2 analog outputs 0-20mA/4-20mA (Option), configurable by controller keypad or PC software (WinConfig), output of control value heating / cooling, events, limits, status etc. | | |
| control algorithm | fully configurable PIC controller with autotune, conditional heating / cooling algorithm for gas burners, special algorithms etc. | | |
| safety features | continuous self monitoring and diagnosis of all components. Safety cut off also by using additional control output and thermocouples. Extended checking of thermocouple break and short circuit, 100% self checking of the acquisition circuit. Algorithms for supervising proper operation of the kiln, warning message to anticipate heating element failure, detection of possible but dangerous programme parameters. Recognition of temperature exchange between the zone of multizone kilns and proper compensation. | | |
| technical datan | supply 140-264 volt resp. 70-132 Volt, approvals CE, GS/VDE (pending), EMC IEC801/IV, dimensions 110x200x60mm, weight w/o cable 850g | | |

• = yes / – = no

## Available Accessories



**Computer Interface:**
Interface for a PC link via RS232(standard) or RS485(optional).bentrup SCADA software WinControl(Windows 2000/XP) for data logging, administration and controller operation, as well as entering programmes and configuration. For simple logging applications, "WinControl light", is available free of charge.



**Wall mounting bracket**
The wall mounting bracket is used to fix the control near the kiln. The control can be easily removed from the bracket and replaced after programming. The bracket comes complete with screws and wall plugs.



**Sockets**
The electrical link to the kiln (power supply 220V, control output for the contactor (220V/1A) and thermocouple) is established using a multipole con-nector (comes with the control). The socket comes ready to fit to the kiln, complete with 1m single-wires.

**Odering codes:**

example:

choise:

TC 507  S  1  2  HAN7Da  1,4

length of lead in m
plug (HAN7Da, HAN15Da, CPC14a)
number of switching control outputs (1 - 4)
number of zones (1 / 2 / 3)
thermocouple(S, R, K, J)
model (TC 503, TC505, TC507)

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