



TM 25

TM 20

TM-O2

## Sensing and Measuring

thermocouples and readings

Estimating is good, measuring is better. Our TM20 and TM25 measure the temperature, our TM-O2 measures both temperature and kiln atmosphere. Depending on the applications various types of thermocouples are available. Of course these thermocouples are exactly the same as used on our other controllers.



thermocouples

**bentrup**

# The readings and thermocouples

## readings

model	TM25	TM20	TM-O2
<b>description</b>	temperature reading for hobby applications, battery operated hand-held unit, direct reading of the kiln temperature on 3 1/2 digit display (LCD), connection to thermocouple by chinch plug.	temperature reading for professional applications, mains operated unit for wall mounting, direct reading of the kiln temperature on bright red 4 digit display (LED), connection to thermocouple by gold plated banana plugs 4mm.	Industrial measurement equipment for temperature and atmosphere (%O2 and %CO), direct reading of temperature, kiln temperature and oxygen concentration on dual display. Automatic reference air for the probe is performed by a pneumatic pump, adjustable rate and time for the refresh. Allows exact reproducible reduction firings e.g. in gas kilns.
<b>sensor types</b>	thermocouple (type S, R, K)	thermocouple (type S, R, K, J)	bentrup/AIC oxygen probe (zircon-oxide probe combined with thermocouple type S)
<b>range</b>	20 °C to 1400 °C	0°C to 1600°C	0°C to 1800°C, 50% O2 to 50% CO
<b>accuracy</b>	ca. +/- 1 %	+/- 0,35%	temp. +/- 0,1%, O2/CO dep. on sensor
<b>power supply</b>	9 V battery, ca.100 h	220V / 50-60Hz, 3W	220V / 50-60Hz, 15W
<b>additional features</b>	–	error messages	error messages, alarm outputs
<b>dimensions in mm</b>	85 x 150 x 30, hand-held	65 x 130 x 65, desk use or wall mounting	150 x 170 x 250, desk use or wall mounting
<b>weight (w/o sensor)</b>	180g	650g	1100g

## thermocouples

We supply thermocouples in various versions and layouts.

Please refer on the front page to the three most commonly used types:

- simple thermocouple with ceramic clamps
- assembled in protection tube with ceramic connection-plate and metal bracket
- assembled in protection tube with isolated aluminium head

<b>type</b>	simple thermocouple / protection tube with bracket / protection tube with head / special types
<b>thermocouples IEC</b>	S (PtRh 10 %-Pt), R (PtRh 13 %-Pt), K (NiCr-Ni), J (Fe-CuNi), B (PtEL 18), ...
<b>fixation / protection tube</b>	metal / ceramic tube type 610, (d=15mm for large head)
<b>wire diameter</b>	0,35 mm (S,R,B), 2 mm (K)
<b>length in mm</b>	120 / 150 / 180 / 210 / 250 / 280 / 300 / 350 / 400 / 450 / 500
<b>mounting accessories</b>	for type "head": metal bracket
<b>connection lead</b>	option (chinch (for TM25), banana plugs (for TM20) )

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