

# Temperature dry-well calibrator Model CTD4000

WIKA data sheet CT 41.10



## Applications

- Testing and calibration of temperature measuring instruments
- Reference instrument for easy and quick measurements
- Suitable for on-site use

## Special features

- High stability
- Possibility to check temperature switches
- Low weight and compact design
- Simple operation



Temperature dry-well calibrator CTD4000

## Description

These innovative calibrators have been designed for on-site applications as well as for the severe conditions of the naval and marine sectors.

Their ease of use and their compact and practical design make them unbeatable in industrial processes where the calibration of the temperature measurement systems is essential for the control of the process and the quality of the final product.

Special attention is paid to reduce weight, size and to reinforce robustness by using an aluminium body as well as aluminium and stainless steel for many internal parts.

Each calibrator is tested in our laboratory and calibrated with our references in accordance with the international standard. At this stage all the functions are checked against reference parameters and a calibration protocol is issued.

The thermal part of these calibrators is made of a metal block heated/cooled with resistors or with Peltier thermoelectric modules. In the metal block there is one bore in which the interchangeable insert is placed.

With the available standard inserts, the calibrators are versatile and can be easily adapted for the calibration of temperature probes with the most common diameters.

Customer-specific inserts and bores are available on request.

## Specifications CTD4000 series

Specifications	Model CTD4000-140
<b>Display</b>	
Temperature range	-24 ... +140 °C [-11 ... +284 °F]
Accuracy <sup>1)</sup>	0.25 K at 100 °C [212 °F]
Stability <sup>2)</sup>	±0.1 K
Resolution	0.1 °C
<b>Temperature control</b>	
Heating time	approx. 20 min from 20 to 120 °C [from 68 °F to 248 °F]
Cooling time	approx. 17 min from +20 to -20 °C [from +68 °F to -4 °F]
Stabilisation time <sup>3)</sup>	dependent on temperature and temperature probe
<b>Insert</b>	
Immersion depth	104 mm [4.09 in]
Insert dimensions	Ø 19 x 104 mm [Ø 0.75 x 4.09 in]
Insert material	Aluminium
<b>Voltage supply</b>	
Operating voltage	AC 100 ... 240 V ±10 %, 50/60 Hz
Power consumption	80 W
Fuse	2.5 A slow blow fuse
Power cord	AC 230 V; for Europe
<b>Communication</b>	
Interface	RS-232
<b>Case</b>	
Dimensions (W x D x H)	130 x 260 x 280 mm [5.12 x 10.24 x 11.02 in]
Weight	4.9 kg [10.81 lbs]

1) Is defined as the measuring deviation between the measured value and the reference value.

2) Maximum temperature difference at a stable temperature over 30 minutes.

3) Time before reaching a stable value.

The measurement uncertainty is defined as the total measurement uncertainty ( $k = 2$ ), which contains the following shares: accuracy, measurement uncertainty of reference, stability and homogeneity.

Specifications	Model CTD4000-375	Model CTD4000-650
<b>Display</b>		
Temperature range	$t_{\text{amb}} + 15\text{ °C} \dots 375\text{ °C}$ [ $t_{\text{amb}} + 15\text{ °F} \dots 707\text{ °F}$ ]	$t_{\text{amb}} + 15\text{ °C} \dots 650\text{ °C}$ [ $t_{\text{amb}} + 15\text{ °F} \dots 1,202\text{ °F}$ ]
Accuracy <sup>1)</sup>	0.35 K	0.5 K
Stability <sup>2)</sup>	±0.1 K	±0.3 K
Resolution	0.1 °C	
<b>Temperature control</b>		
Heating time	approx. 20 min from 30 to 375 °C [from 86 °F to 707 °F]	approx. 35 min from 50 to 650 °C [from 122 °F to 1,202 °F]
Cooling time	approx. 40 min from 375 to 100 °C [from 707 °F to 212 °F]	approx. 60 min from 650 to 100 °C [from 1,202 °F to 212 °F]
Stabilisation time <sup>3)</sup>	dependent on temperature and temperature probe	
<b>Insert</b>		
Immersion depth	150 mm [5.91 in]	
Insert dimensions	Ø 26 x 150 mm [Ø 1.02 x 5.91 in]	
Insert material	Aluminium	Brass, nickel-plated
<b>Voltage supply</b>		
Operating voltage	AC 115/230 V ±10 %, 50/60 Hz Automatic switchable	
Power consumption	600 W	
Fuse	6.3 A slow blow fuse (at AC 115 V) 3.15 A slow blow fuse (at AC 230 V)	
Power cord	AC 230 V; for Europe	
<b>Communication</b>		
Interface	RS-232	
<b>Case</b>		
Dimensions (W x D x H)	130 x 260 x 280 mm [5.12 x 10.24 x 11.02 in]	
Weight	5.4 kg [11.9 lbs]	6 kg [13.2 lbs]

1) Is defined as the measuring deviation between the measured value and the reference value.


2) Maximum temperature difference at a stable temperature over 30 minutes.

3) Time before reaching a stable value.

The measurement uncertainty is defined as the total measurement uncertainty ( $k = 2$ ), which contains the following shares: accuracy, measurement uncertainty of reference, stability and homogeneity.

## Approvals

Approvals included in the scope of delivery

Logo	Description	Country
	<b>EU declaration of conformity</b>	European Union
	EMC directive <sup>1)</sup> EN 61326 emission (group 1, class A) and immunity (industrial application)	
	Low voltage directive EN 61010, safety requirements for electrical equipment for measurement, control and laboratory use	
	RoHS directive	

1) **Warning!** This is class A equipment for emissions and is intended for use in industrial environments. In other environments, e.g. residential or commercial installations, it can interfere with other equipment under certain conditions. In such circumstances the operator is expected to take the appropriate measures.

Optional approvals




Logo	Description	Country
	<b>DNV GL (only valid for CTD4000-375 and CTD4000-650)</b> Ships, shipbuilding (e.g. offshore)	International





## Certificates






Certificate	
<b>Calibration</b>	<ul style="list-style-type: none"> <li>■ Without</li> <li>■ 3.1 calibration certificate per DIN EN 10204</li> <li>■ DKD/DAkkS calibration certificate</li> </ul>
<b>Recommended recalibration interval</b>	1 year (dependent on conditions of use)


Approvals and certificates, see website

## Accessories

Inserts for model CTD4000-140		Order code
Description		CTA9I-2O
	<b>Insert undrilled</b> Ø 19 x 104 mm [Ø 0.75 x 4.09 in] Material: Aluminium	-N-
	<b>Insert drilled</b> Ø 19 x 104 mm [Ø 0.75 x 4.09 in] Drilling depth: 100 mm [3.94 in] Material: Aluminium Bore diameter: 1 x 3.3 mm, 1 x 4.8 mm and 2 x 6.4 mm [1 x 0.13 in, 1 x 0.19 in and 2 x 0.25 in]	-W-
	<b>Insert replacement tool</b>	-J-
<b>Ordering information for your enquiry:</b>		
1. Order code: CTA9I-2O		↓
2. Option:		[ ]

Inserts for model CTD4000-375		Order code
Description		CTA9I-2P
	<b>Insert undrilled</b> Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Material: Aluminium	-N-
	<b>Insert drilled</b> Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Drilling depth: 145 mm [5.71 in] Material: Aluminium	
	Bore diameter: 1 x 12.7 mm and 1 x 6.4 mm [1 x 0.50 in and 1 x 0.25 in]	-O-
	Bore diameter: 1 x 3.2 mm, 1 x 4.8 mm, 1 x 6.4 mm and 1 x 11.1 mm [1 x 0.13 in, 1 x 0.19 in, 1 x 0.25 in and 1 x 0.44 in]	-P-
	<b>Insert replacement tool</b>	-J-
<b>Ordering information for your enquiry:</b>		
1. Order code: CTA9I-2P 2. Option:		↓ [ ]

Inserts for model CTD4000-650		Order code
Description		CTA9I-2Q
	<b>Insert undrilled</b> Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Material: Brass, nickel-plated	-N-
	<b>Insert drilled</b> Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Drilling depth: 145 mm [5.71 in] Material: Brass, nickel-plated	
	Bore diameter: 1 x 15.7 mm [0.62 in]	-Q-
	Bore diameter: 1 x 17.5 mm [0.69 in]	-R-
	Bore diameter: 1 x 6.5 mm and 1 x 12.7 mm [1 x 0.26 in and 1 x 0.50 in]	-S-
	Bore diameter: 1 x 4.5 mm, 1 x 6.5 mm and 1 x 10.5 mm [1 x 0.18 in, 1 x 0.26 in and 1 x 0.41 in]	-T-
	Bore diameter: 1 x 3.2 mm, 1 x 5 mm, 1 x 6.5 mm and 1 x 9.5 mm [1 x 0.13 in, 1 x 0.20 in, 1 x 0.26 in and 1 x 0.37 in]	-U-
	Bore diameter: 1 x 3.2 mm, 1 x 5 mm, 1 x 7 mm and 1 x 9.5 mm [1 x 0.13 in, 1 x 0.20 in, 1 x 0.28 in and 1 x 0.41 in]	-V-

Inserts for model CTD4000-650		Order code
Description		CTA9I-2Q
	Insert replacement tool	-J-
Ordering information for your enquiry:		
1. Order code: CTA9I-2Q 2. Option:		↓ [ ]

Description		Order code
Transport case		CTX-A-KB
-CC-		
Ordering information for your enquiry:		
1. Order code: CTX-A-KB 2. Option:		↓ [ ]

## Scope of delivery

- Temperature dry-well calibrator model CTD4000
- Power cord, 1.5 m [5 ft] with safety plug
- Drilled standard insert, depends on instrument version
  - for CTD4000-140 3.3 mm, 4.8 mm and 2 x 6.4 mm  
[0.13 in, 0.19 in and 2 x 0.25 in]
  - for CTD4000-375 3.2 mm, 4.8 mm, 6.4 mm and  
11.1 mm  
[0.13 in, 0.19 in, 0.25 in and 0.44 in]
  - for CTD4000-650 3.2 mm, 5 mm, 7 mm and 10.5 mm  
[0.13 in, 0.2 in, 0.28 in and 0.41 in]
- Replacement tools
- Operating instructions

## Options

- 3.1 calibration certificate per DIN EN 10204
- DKD/DAkkS calibration certificate

## Ordering information

Model / Type of application / Temperature range / Calibration / Insert / Transport case / Power cord / Further approvals / Additional ordering information

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