

Temperature dry-well calibrator

Basic version, optionally with DNV approval

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
- Easy handling



Temperature dry-well calibrator CTD4000

Standard
articles



Description

These innovative calibrators have been designed for on-site applications as well as for the severe conditions of the naval and shipbuilding sectors. Their user-friendliness and their compact and practical design make them unbeatable in industrial processes where the calibration of the temperature measurement systems is essential for process control and the quality of the final product.

Special attention is paid to reduce weight, size and to reinforce robustness by using an aluminium case 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 report 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 inserts are 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

Basic information	Model CTD4000-140
Temperature range	-24 ... +140 °C [-11 ... +284 °F]
Temperature stability ¹⁾	→ See "Accuracy specifications" table
Metal block	
Immersion depth	104 mm [4.09 in]
Dimension of the insert	Ø 19 x 104 mm [Ø 0.75 x 4.09 in]
Dry-well material	Aluminium 3.2315
Dimensions (W x D x H)	
Calibrator without carrying handle	130 x 260 x 275 mm [5.118 x 10.236 x 10.827 in]
Height of carrying handle	40 mm [1.575 in]
Weight	4.9 kg [10.81 lb]

1) Determined in accordance with current calibration guideline in a standard insert.

Basic information	Model CTD4000-375	Model CTD4000-650
Temperature range	T _{amb} + 15 °C ... 375 °C [T _{amb} + 15 °F ... 707 °F]	T _{amb} + 15 °C ... 650 °C [T _{amb} + 15 °F ... 1,202 °F]
Temperature stability ¹⁾	→ See “Accuracy specifications” table	
Metal block		
Immersion depth	150 mm [5.91 in]	
Dimension of the insert	Ø 26 x 150 mm [Ø 1.02 x 5.91 in]	
Dry-well material	Aluminium 3.2315	Brass 2.0401
Dimensions (W x D x H)		
Calibrator without carrying handle	130 x 260 x 270 mm [5.118 x 10.236 x 10.630 in]	
Height of carrying handle	40 mm [1.575 in]	
Weight	5.4 kg [11.9 lb]	6 kg [13.2 lb]

1) Determined in accordance with current calibration guideline in a standard insert.

Accuracy specifications			
Model	CTD4000-140	CTD4000-375	CTD4000-650
Accuracy ¹⁾	±0.25 K	0.35 K	0.5 K
Temperature stability ²⁾	±0.1 K	±0.1 K	±0.3 K
Temperature distribution			
Axial homogeneity	Depending on temperature, temperature probes and their number		
Radial homogeneity ³⁾	Depending on temperature, temperature probes and their number		

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

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

3) Maximum temperature difference between the bores (all thermometers inserted to the same depth).

Temperature control		
Heating time		
Model CTD4000-140	From 20 °C to 120 °C [from 68 °F to 248 °F]	Approx. 20 min
Model CTD4000-375	From 30 °C to 375 °C [from 86 °F to 707 °F]	Approx. 20 min
Model CTD4000-650	From 50 °C to 650 °C [from 122 °F to 1,202 °F]	Approx. 35 min
Cooling time		
Model CTD4000-140	From +20 °C to -20 °C [from +68 °F to -4 °F]	Approx. 17 min
Model CTD4000-375	From 375 °C to 100 °C [from 707 °F to 212 °F]	Approx. 40 min
Model CTD4000-650	From 650 °C to 100 °C [from 1,202 °F to 212 °F]	Approx. 60 min
Stabilisation time	Time before reaching a stable value. Depending on temperature and temperature probe	

Digital display instrument	
Display	2-row, 4-digit LED display
Display range	-199.9 ... +999.9 °C [-199.9 ... +999.9 °F]
Resolution	0.1 °C
Units	Adjustable via menu °C °F

Communication	
Interface	RS-232
Baud rate	9600

Voltage supply and performance data			
Model	CTD4000-140	CTD4000-375	CTD4000-650
Operating voltage	AC 100 ... 240 V ±10 %, 50/60 Hz	AC 115/230 V ±10 %, 50/60 Hz Automatically switchable	
Power consumption	80 W	600 W	
Fuse	2.5 A slow blow fuse	6.3 A slow blow (at AC 115 V) 3.15 A slow blow (at AC 230 V)	
Power cord	Europe USA/Canada Switzerland UK China		

Operating conditions	
Place of use	For indoor use only
Operating altitude	Up to 2,000 m [6,562 ft] above sea level
Ambient temperature range	5 ... 45 °C [41 ... 113 °F] The ambient temperature influences the heating/cooling behaviour
Storage and transport temperature range	-10 ... +60 °C [14 ... 140 °F]
Humidity	95 % relative humidity
Condensation	Non-condensing
Electrical safety	
Overvoltage category	II
Pollution degree per IEC 61010-1	2

Approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	EMC directive ¹⁾ EN 61326 emission (group 1, class A) and immunity (industrial environment)	
	Low Voltage Directive EN 61010, safety requirements for electrical equipment for measurement, control and laboratory use	
	RoHS directive	

1) This is class A equipment for emitted interference 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	Region
	DNV GL (only valid for CTD4000-375 and CTD4000-650) Ships, shipbuilding (e.g. offshore)	International

Certificates

Description	
Calibration ¹⁾	■ 3.1 inspection certificate per EN 10204 ■ DAkkS calibration certificate (traceable and accredited in accordance with ISO/IEC 17025)
Recommended calibration interval	1 year (dependent on conditions of use)

1) Calibration is carried out, as standard, at 6 temperatures evenly distributed over the temperature range. On request, special points are also possible.

→ For approvals and certificates, see website

Accessories and spare parts

Accessories for model CTD4000 ¹⁾		Order code
Description		CTX-A-KB
	Transport case	-CC-
Ordering information for your enquiry:		
1. Order code: CTX-A-KB		↓
2. Option:		[]

1) The figures are an example and may change in design, material composition and representation, depending on the state of the art.

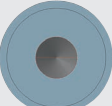
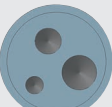
Inserts for model CTD4000-140 ¹⁾		Order code
Description		CTA9I-2O
	Undrilled insert Dimension: Ø 19 x 104 mm [Ø 0.75 x 4.09 in] Material: aluminium 3.2315	-N-
	Drilled insert Dimension: Ø 19 x 104 mm [Ø 0.75 x 4.09 in] Drilling depth: 100 mm [3.94 in] Material: aluminium 3.2315 Bore diameter: 1 x 3.3 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-
-	Customer-specific special inserts available on request.	-?-
	Insert replacement tool	-J-
Ordering information for your enquiry:		
1. Order code: CTA9I-2O		↓
2. Option:		[]

1) The figures are an example and may change in design, material composition and representation, depending on the state of the art.

Inserts for model CTD4000-375 ¹⁾		Order code
Description		CTA9I-2P
	Undrilled insert Dimension: Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Material: aluminium 3.2315	-N-
	Drilled insert Dimension: Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Drilling depth: 145 mm [5.71 in] Material: aluminium 3.2315	
	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-

Inserts for model CTD4000-375 ¹⁾		Order code
Description		CTA9I-2P
-	Customer-specific special inserts available on request.	-?-
	Insert replacement tool	-J-
Ordering information for your enquiry:		
1. Order code: CTA9I-2P		↓
2. Option:		[]

1) The figures are an example and may change in design, material composition and representation, depending on the state of the art.

Inserts for model CTD4000-650 ¹⁾		Order code
Description		CTA9I-2Q
	Undrilled insert Dimension: Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Material: brass 2.0375	-N-
	Drilled insert Dimension: Ø 26 x 150 mm [Ø 1.02 x 5.91 in] Drilling depth: 145 mm [5.71 in] Material: brass 2.0375	
	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-
-	Customer-specific special inserts available on request.	-?-
	Insert replacement tool	-J-
Ordering information for your enquiry:		
1. Order code: CTA9I-2Q		↓
2. Option:		[]

1) The figures are an example and may change in design, material composition and representation, depending on the state of the art.

Scope of delivery

- Temperature dry-well calibrator model CTD4000
- Power cord 1.5 m [5 ft]
- 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
- Calibration certificate

Ordering information

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

Standard
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