

Temperature Dry Well Calibrators Series CTD 9300

WIKA Data Sheet CT 41.38

Applications

- Biotechnological and pharmaceutical industries
- Food processing
- Demanding on-site calibrations
- Measurement and control laboratories in the chemical industry

Special Features

- Easy operation via intuitive, user-friendly menus
- Large, high-contrast and easy-to-read display
- Short response times due to optimised control
- Improved accuracy due to homogeneous block temperature



Temperature Dry Well Calibrator CTD 9300

Description

Range of applications

Whether in laboratories, workshops or on site, these temperature dry well calibrators can meet any calibration requirement. As an option all versions are available with an integrated measuring instrument. This enables the measurement of resistances, thermoelectric voltages and current signals of thermometers by means of 4-20 mA transmitters and the direct display in degrees Celsius.

With the help of our calibration software and a laptop computer fully automatic calibrations of electrical thermometers can be carried out anywhere. It is also possible to retrofit the integratable measuring instrument into existing calibrators.

Two models from -30 °C to 600 °C

The dry well calibrators are available for two temperature ranges. Model CTD 9300-160, conceived for temperatures ranging from -30 °C to 160 °C, is primarily suitable for biotechnological as well as pharmaceutical and food processing applications. Above 40 °C model CTD 9300-600

is available for temperatures up to 600 °C. This model is mainly used in power stations and the mechanical engineering industry, and it is also suitable for the chemical industry. All versions are equipped with blocks for large 28 mm diameter and 150 mm long inserts.

Calibrating, simple, quick and reliable

We know our customers' requirements well: Nowadays the main features required are not only high reliability and accuracy, but the customers also want the instruments to be safe and easy to use. Our dry well calibrators work with electrically cooled and heated metal blocks. Inserts with different inner diameters adjust the test probes to the calibrator.

Due to a unique controller, which has been specially developed by us for calibrations, the calibrators of the CTD 9300 family reach the set-point temperature extremely fast and thus help to save costs. These instruments are very safe and easy to use.

Large, easy-to-read graphics display

All calibrators of the CTD 9300 family have a large, easy-to-read graphics display. Brightness and contrast can be adjusted as required in the system menu.

Convenient to work with due to user-friendly menus

The calibrator features two clearly arranged main menus, which are easy to access.

- Measurement and calibration menu
- Setup menu

Measurement and calibration menu

In this menu set-point temperatures are given, and the control is activated pushing the "Control" key. The display shows actual and set-point temperature as well as Min. and Max. temperature, or as an option the average temperature. The time until the set-point temperature is reached is also displayed.

Setup menu

In the setup menu functions such as

- temperature ramp function
- configuration of the integratable measuring instrument
- display parameters
- temperature units
- RS 232 interface parameters

can be set.

Further functions include language selection German/English, adjustable alarm function, operating hours counter as well as a real-time clock with date.

Stable, homogeneous block temperature

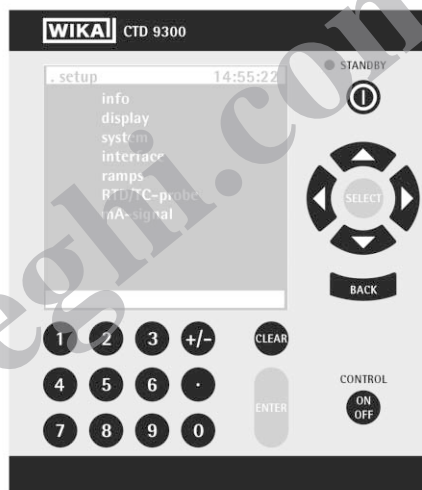
Due to a unique controller, which has been specially developed for temperature calibrations and a special heating block for the 600 °C model, a high control accuracy and a homogeneous temperature distribution within the block is achieved. Important features in this context are control algorithms, which have been optimised for calibration processes, and a heating block with an heat introduction that increases towards the upper end. The resulting small temperature fluctuations and the good axial temperature distribution lead to a considerably reduced total uncertainty during calibration.

Option: Integratable measuring instrument

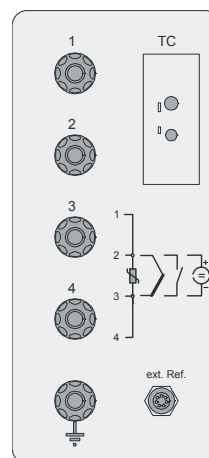
With the measuring instrument, which can also be retrofitted into existing calibrators, Pt 100, thermocouples and 4-20 mA currents can be measured and converted into temperatures, also in comparison with an external reference thermometer. Automatic calibrations are possible using a PC/laptop and the calibration software.



Measurement and Calibration Menu



Setup Menu



Integratable Measuring Instrument

Specifications (temporary)		CTD 9300-600	CTD 9300-160
Temperature range	°C	40 to 600	-30 to 150 (160)
Uncertainty	K	0.1 to 100 °C, then 0.1 % of meas. value	0.1 to 100 °C, then 0.1 % of meas. value
Stability	K	0.03 at 100 °C to 0.1 at 600 °C	0.01 to 0.05
Resolution	K	0.01	0.01
Gradients, axially over 4 cm at t max ¹⁾	K	0.4	0.06
Heat-up time ²⁾	minutes	30 from 100 °C to 600 °C	12 from 20 °C to 160 °C
Cool-down time ²⁾	minutes	110 from 600 °C to 100 °C	7 from 20 °C to -20 °C
Block material		Brass	Aluminium
Insertion depth, standard block	mm	150	150
Block, diameter x length	mm	Ø 28 x 150	Ø 28 x 150
Power supply ²⁾	VAC / Hz	230 (115) / 50-60	230 (115) / 50-60
Dimensions, W x D x H	mm	160 x 320 x 420	160 x 320 x 420
Weight	kg	approx. 10	approx. 10
Scope of supply		1 Insert, 6.5 mm diameter Operating instructions, mains cable and insert removal tool	1 insert, 6.5 mm diameter Operating instructions, mains cable and insert removal tool

¹⁾ The changes in temperature over the first 40 mm, i.e. from 150 mm to 110 mm insertion depth, are to be understood as axial gradients.

²⁾ The standard unit will be supplied for 230 VAC. If 115 VAC power supply is required, this must be stated at time ordering.

Accessories ³⁾	CTD 9300-600	CTD 9300-160
Integratable instrument, option	CTA 9300 I	CTA 9300 I
Insert, standard with 1 bore ##, #: bores dia. 1.5 mm to 24 mm in steps of 0.5 mm	CTA 9300SM-##, #	CTA 9300SA-##, #
Insert, multiple bores ⁴⁾	On request	On request
Insert removal tool	CTA 9300 T	CTA 9280 T
Transport case, rugged	CTA 9300 K	CTA 9300 K
RS 232 data cable	CTA 9300 X	CTA 9300 X
DKD calibration	At 6 temperatures:	At 6 temperatures:
Uncertainty 0.2 K or 0.15% of measured value ⁵⁾	100, 200, 300, 400, 500 and 600 °C	- 30, 0, 50, 100, 130 and 160 °C
Other calibrations	On request	On request

³⁾ The accessories listed here are not included in the standard scope of supply, except for the standard insert with inside dia. 6.5 mm and one insert removal tool.

⁴⁾ The number of possible bores in a customised insert depends on the diameters of the bores and the permissible minimum distances between the bores and between the bores and the edge of the insert.

⁵⁾ The indication of the measurement uncertainty with 0.2 K or 0.15 % of measured value is currently given by the DKD. After finishing the design evaluation, probably in spring 2004, the uncertainty should be reduced to 0.1 K or 0.1 %.

Scope of supply

- Temperature dry well calibrator
- Mains cable 1.5 m with mains plug
- Insert 6.5 mm inner diameter
- Insert removal tool
- Operating instructions in German and English

Options

- Integratable measuring instrument
- Alternative line voltage 115 VAC
- DKD calibration certificate

Accessories

- Additional standard inserts
- Additional inserts with multiple bores
- Rugged transport case
- Spare insert removal tool
- Data cable RS 232, including adapter 25/9
- Calibration software



Temperature Dry Well Calibrator Model CTD 9300

Products and Services within our Testing and Calibration Technology Program

- DKD calibration services for pressure
- Repair of calibration units of all makes
- Portable pressure measuring devices for testing and calibration tasks
- Precision pressure measuring units and pressure controllers
- Primary standards for pressure
- Testing technology system solutions
- DKD calibration services for temperature
- Temperature dry well calibrators
- Calibration baths and furnaces
- Temperature measuring instruments for testing and calibrating tasks
- Precision thermometers
- Primary standards for temperature
- Consulting and training

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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