

# Temperature dry-well calibrator

## Premium version

### Model CTD9350

WIKA data sheet CT 41.39

#### Applications

- Bio and pharmaceutical industries
- Food industry
- Power plants and plant construction
- Measurement and control laboratories in the chemical industry
- Demanding calibrations in production and laboratory

#### Special features

- Easy operation via intuitive, user-friendly menus
- Large, easy-to-read touchscreen
- Short response times due to optimised control
- Improved accuracy due to homogeneous dry-well temperature
- Creation of calibration tasks incl. preparation of a certificate



**Fig. left: with integrated measuring instrument**  
**Fig. right: without measuring instrument**

#### Description

##### Range of applications

Whether in laboratories, workshops or on-site, the CTD9350 series of temperature dry-well calibrators can meet any calibration requirement. All instruments can be fitted with an integrated measuring instrument. This enables resistances, thermoelectric voltages and current signals from thermometers with 0/4 ... 20 mA transmitters to be recorded and displayed directly in °C.

##### Four versions from -50 ... +700 °C [-58 ... +1,292 °F]

The temperature dry-well calibrators are matched to five temperature ranges. The CTD9350-165 has a range of -35 ... +165 °C [-31 ... +329 °F], the CTD9350-165-X also offers a larger insert of 60 mm [2.36 in].

If a larger measuring range is required, the CTD9350-COOL is the right choice. The range -50 ... +200 °C [-58 ... +392 °F] is optimal for the biotechnology as well as the pharmaceutical and food industries.

Above 40 °C [104 °F] are used: the CTD9350-450 and CTD9350-700 with a limit temperature of 450 °C [842 °F] and 700 °C [1,292 °F], with the CTD9350-450 offering a larger measuring insert.

All instruments are fitted with dry wells for large inserts.

### Easy calibration, with automatic certificate generation

The operation of the instruments using the large touchscreen is very simple and intuitive. With the instrument's software, calibration tasks can easily be created to simplify the calibration process for the user as much as possible. With this, automatic calibrations can be performed after adding a test item and the desired measuring points. The measured value can be recorded with the integrated measuring instrument manually or with an optional USB camera. At the end of the process, the instrument's own software generates a calibration certificate.

### Increase productivity

Since, in a large number of processes, the time factor is important, an actual time calculation is carried out and the change time is displayed each time the temperature values change. This gives the user a better overview of their heating and cooling times.

### Stable, homogeneous dry-well temperature

Due to a controller, which has been specifically developed for temperature calibration, and a special heating block for temperatures to 700 °C [1,292 °F], 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 the calibration processes, and a heating block with a heating power that increases towards the upper end. The small resulting temperature fluctuations and the good axial temperature distribution lead to a considerably reduced total measurement uncertainty during calibration.

## Overview of versions of the models CTD9350

Four instruments for the temperature range from -50 ... +700 °C [-58 ... +1,292 °F]

### Model CTD9350-COOL

Temperature range from -50 ... +200 °C [-58 ... +392 °F]

### Model CTD9350-165

Temperature range from -35 ... +165 °C [-31 ... +329 °F]

These calibrators work with Peltier elements and can therefore also reach test temperatures below the ambient temperature. Due to their ability to actively cool, they are more commonly used in the biotechnology, pharmaceutical and food industries.



### Model CTD9350-165-X

Temperature range from -30 ... +165 °C [-31 ... +329 °F]

The version CTD9350-165-X has an enlarged insert with Ø 60 mm [2.36 in]. This makes it possible to calibrate several temperature probes simultaneously without having to change the inserts.



### Model CTD9350-450

**Temperature range from +40 ... +450 °C [+104 ... +842 °F]**

The CTD9350-450 is used in the medium temperature range up to 450 °C [842 °F]. It generates its temperature with an electrical resistance heating and has an enlarged insert with Ø 60 mm [2.36 in]. This makes it possible to calibrate several temperature probes simultaneously without having to change the inserts.



### Model CTD9350-700

**Temperature range from +40 ... +700 °C [+104 ... +1,292 °F]**

This is the high-temperature version. This also uses an electrical resistance heater. When it comes to testing at high temperatures, such as for exhaust gases measurements on test benches or in power generation, the model CTD9350-700 is the right choice.



## Specifications of the temperature dry-well calibrator

| Basic information       |                                                                                                                            |                                                                                     |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Temperature range       | Model CTD9350-COOL                                                                                                         | -50 ... +200 °C [-58 ... +392 °F]                                                   |
|                         | Model CTD9350-165                                                                                                          | -35 ... +165 °C [-31 ... +329 °F]                                                   |
|                         | Model CTD9350-165-X                                                                                                        | -30 ... +165 °C [-22 ... +329 °F]                                                   |
|                         | Model CTD9350-450                                                                                                          | T <sub>amb</sub> ... 450 °C [T <sub>amb</sub> ... 842 °F]                           |
|                         | Model CTD9350-700                                                                                                          | T <sub>amb</sub> ... 700 °C [T <sub>amb</sub> ... 1,292 °F]                         |
| Temperature stability   | Determined in accordance with current calibration guideline in a standard insert.<br>→ See table „Accuracy specifications“ |                                                                                     |
| Temperature control     | → See table „Tempering“                                                                                                    |                                                                                     |
| Insert                  |                                                                                                                            |                                                                                     |
| Dimension of the insert | Model CTD9350-COOL<br>Model CTD9350-165                                                                                    | Ø 28 x 150 mm [Ø 1.10 x 5.91 in]                                                    |
|                         | Model CTD9350-165-X                                                                                                        | ■ Ø 60 x 163 mm [Ø 2.36 x 6.42 in]<br>■ Ø 60 x 152 mm [Ø 2.36 x 5.98 in] Air Shield |
|                         | Model CTD9350-450                                                                                                          | ■ Ø 60 x 150 mm [Ø 2.36 x 5.91 in]<br>■ Ø 60 x 152 mm [Ø 2.36 x 5.98 in] Air Shield |
|                         | Model CTD9350-700                                                                                                          | Ø 29 x 144 mm [Ø 1.14 x 5.67 in]                                                    |
| Immersion depth         | Model CTD9350-COOL<br>Model CTD9350-165<br>Model CTD9350-165-X<br>Model CTD9350-450                                        | 145 mm [5.71 in]                                                                    |
|                         | Model CTD9350-700                                                                                                          | 139 mm [5.47 in]                                                                    |
| Material                | Model CTD9350-COOL<br>Model CTD9350-165                                                                                    | Brass 2.0375                                                                        |
|                         | Model CTD9350-165-X<br>Model CTD9350-450                                                                                   | Aluminium 3.4365                                                                    |
|                         | Model CTD9350-700                                                                                                          | Aluminium-bronze 2.0966                                                             |

| Basic information                  |                                                                                                                                      |                            |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Digital display instrument         |                                                                                                                                      |                            |
| Display                            | Colour touchscreen (7"), laminated safety glass                                                                                      |                            |
| Display range                      | -199.9 ... +999.9 °C [-199.9 ... +999.9 °F]                                                                                          |                            |
| Resolution                         | 0.001 °C                                                                                                                             |                            |
| Units                              | °C, °F, K                                                                                                                            |                            |
| Menu language                      | English<br>German                                                                                                                    |                            |
| Functions                          |                                                                                                                                      |                            |
| Menu functions                     | Calibration without certificate<br>Calibration with automatic certificate generation<br>Remote control<br>Data export to a USB stick |                            |
| User settings                      | User-defined data is indicated on the test certificate                                                                               |                            |
| Dimensions (W x D x H)             |                                                                                                                                      |                            |
| Calibrator without carrying handle | 210 x 300 x 380 mm [8.27 x 11.81 x 14.96 in]                                                                                         |                            |
| Height of carrying handle          | 50 mm [1.97 in]                                                                                                                      |                            |
| Weight                             | Model CTD9350-COOL                                                                                                                   | Approx. 15 kg [33.1 lb]    |
|                                    | Model CTD9350-165<br>Model CTD9350-165-X                                                                                             | Approx. 13.5 kg [29.77 lb] |
|                                    | Model CTD9350-450                                                                                                                    | 11 kg [24.26 lb]           |
|                                    | Model CTD9350-700                                                                                                                    | 10 kg [22.1 lb]            |

| Accuracy specifications                      |                                                                                   |                                      |                                      |                                                              |                                                                |
|----------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------|
| Model                                        | CTD9350-COOL                                                                      | CTD9350-165                          | CTD9350-165-X                        | CTD9350-450                                                  | CTD9350-700                                                    |
| Temperature range                            | -50 ... +200 °C<br>[-58 ... +392 °F]                                              | -35 ... +165 °C<br>[-31 ... +329 °F] | -30 ... +165 °C<br>[-22 ... +329 °F] | T <sub>amb</sub> ... 450 °C<br>[T <sub>amb</sub> ... 842 °F] | T <sub>amb</sub> ... 700 °C<br>[T <sub>amb</sub> ... 1,292 °F] |
| Measurements determined                      | Determined in accordance with current calibration guideline in a standard insert. |                                      |                                      |                                                              |                                                                |
| Accuracy                                     |                                                                                   |                                      |                                      |                                                              |                                                                |
| External reference and Air Shield insert     | -                                                                                 | -                                    | ±0.070 K                             | ±0.100 K                                                     | ±0.100 K                                                       |
| External reference                           | ±0.100 K                                                                          | ±0.070 K                             | ±0.100 K                             | ±0.150 K                                                     | -                                                              |
| Internal reference                           | ±0.150 K                                                                          | ±0.100 K                             | ±0.150 K                             | ±0.200 K                                                     | ±0.075 % of reading, min.<br>±0.300 K                          |
| Temperature stability                        |                                                                                   |                                      |                                      |                                                              |                                                                |
| External reference and Air Shield insert     | -                                                                                 | -                                    | ±0.005 K                             | ±0.010 K                                                     | ±0.020 K                                                       |
| External reference                           | ±0.003 K                                                                          | ±0.008 K                             | ±0.010 K                             | ±0.030 K                                                     | -                                                              |
| Internal reference                           | ±0.020 K                                                                          | ±0.015 K                             | ±0.010 K                             | ±0.030 K                                                     | ±0.100 K                                                       |
| Influence due to loading                     |                                                                                   |                                      |                                      |                                                              |                                                                |
| External reference and Air Shield insert     | -                                                                                 | -                                    | ±0.010 K                             | ±0.010 K                                                     | ±0.020 K                                                       |
| External reference                           | ±0.040 K                                                                          | ±0.010 K                             | ±0.080 K                             | ±0.010 K                                                     | -                                                              |
| Internal reference                           | ±0.150 K                                                                          | ±0.300 K                             | ±0.150 K                             | ±0.200 K                                                     | ±0.300 K                                                       |
| Temperature distribution – Axial homogeneity |                                                                                   |                                      |                                      |                                                              |                                                                |
| External reference and Air Shield insert     | -                                                                                 | -                                    | ±0.060 K                             | ±0.100 K                                                     | ±0.300 K                                                       |
| External reference                           | ±0.200 K                                                                          | ±0.050 K                             | ±0.200 K                             | ±0.200 K                                                     | -                                                              |
| Internal reference                           | ±0.200 K                                                                          | ±0.050 K                             | ±0.200 K                             | ±0.200 K                                                     | ±0.300 K                                                       |

| Accuracy specifications                              |              |             |               |             |             |
|------------------------------------------------------|--------------|-------------|---------------|-------------|-------------|
| Model                                                | CTD9350-COOL | CTD9350-165 | CTD9350-165-X | CTD9350-450 | CTD9350-700 |
| <b>Temperature distribution – Radial homogeneity</b> |              |             |               |             |             |
| External reference and Air Shield insert             | -            | -           | ±0.010 K      | ±0.050 K    | ±0.040 K    |
| External reference                                   | ±0.050 K     | ±0.020 K    | ±0.050 K      | ±0.050 K    | -           |
| Internal reference                                   | ±0.050 K     | ±0.020 K    | ±0.050 K      | ±0.050 K    | ±0.040 K    |
| <b>Hysteresis</b>                                    |              |             |               |             |             |
| External reference and Air Shield insert             | -            | -           | ±0.004 K      | ±0.010 K    | ±0.015 K    |
| External reference                                   | ±0.010 K     | ±0.010 K    | ±0.010 K      | ±0.010 K    | -           |
| Internal reference                                   | ±0.010 K     | ±0.010 K    | ±0.010 K      | ±0.030 K    | ±0.015 K    |

| Temperature control     |                                                                                             |                |
|-------------------------|---------------------------------------------------------------------------------------------|----------------|
| Measurements determined | When using the internal reference and without an insert                                     |                |
| Heating time            |                                                                                             |                |
| Model CTD9350-COOL      | From 20 °C to 200 °C [from +68 °F to +392 °F]                                               | 9 min          |
|                         | From -50 °C to +200 °C [from -58 °F to +392 °F]                                             | 12 min         |
| Model CTD9350-165       | From 20 °C to 165 °C [from 68 °F to 329 °F]                                                 | 14 min         |
|                         | From -35 °C to +165 °C [from -31 °F to +329 °F]                                             | 16 min         |
| Model CTD9350-165-X     | From 20 °C to 165 °C [from 68 °F to 329 °F]                                                 | Approx. 30 min |
|                         | From -35 °C to +165 °C [from -31 °F to +329 °F]                                             | Approx. 38 min |
| Model CTD9350-450       | From +20 °C to +450 °C [from +68 °F to +842 °F]                                             | Approx. 14 min |
| Model CTD9350-700       | From 20 °C to 690 °C [from 68 °F to 1,274 °F]                                               | 19 min         |
| Cooling time            |                                                                                             |                |
| Model CTD9350-COOL      | From +20 °C to -50 °C [from +68 °F to -58 °F]                                               | 35 min         |
|                         | From 200 °C to 20 °C [from +392 °F to -68 °F]                                               | 18 min         |
| Model CTD9350-165       | From +20 °C to -30 °C [from +68 °F to -22 °F]                                               | 13 min         |
|                         | From 165 °C to 20 °C [from 329 °F to 68 °F]                                                 | 11 min         |
| Model CTD9350-165-X     | From +20 °C to -25 °C [from +68 °F to -13 °F]                                               | Approx. 35 min |
|                         | From 165 °C to 20 °C [from 329 °F to 68 °F]                                                 | Approx. 17 min |
| Model CTD9350-450       | From 450 °C to 100 °C [from +842 °F to +212 °F]                                             | Approx. 60 min |
| Model CTD9350-700       | From 700 °C to 30 °C [from 1,292 °F to 86 °F]                                               | 85 min         |
| Stabilisation time      | Time required to reaching a stable value.<br>Depending on temperature and temperature probe |                |

| Communication           |                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------|
| <b>Interface</b>        | 3 x USB<br>Ethernet                                                                      |
| <b>Connectivity</b>     | OPC UA<br>Serial communication<br>HTTP<br>→ Details and further possibilities on request |
| <b>Baud rate</b>        | 2400                                                                                     |
| <b>Measuring rate</b>   | 1 measured value per second                                                              |
| <b>Internal program</b> | Devices under test, test tasks and test points can be created without limit              |

| Voltage supply and performance data |                                                                                                         |                              |                                                                      |                                                                                                                              |
|-------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Model                               | CTD9350-COOL                                                                                            | CTD9350-165<br>CTD9350-165-X | CTD9350-450                                                          | CTD9350-700                                                                                                                  |
| Operating voltage                   | AC 90 ... 240 V,<br>50/60 Hz                                                                            | AC 90 ... 240 V,<br>50/60 Hz | <div>■ AC 90 ... 115 V,<br/>60 Hz</div> <div>■ AC 230 V, 50 Hz</div> | <div>■ AC 90 ... 115 V, 60 Hz</div> <div>■ AC 230 V, 50 Hz</div> <div>Protective conductor<br/>(PE) must be available.</div> |
| Power consumption                   | 555 W                                                                                                   | 375 W                        | 1,000 W                                                              | 1,000 W                                                                                                                      |
| Fuse                                | Microfuse, slow blow 6.3 AH 250 V                                                                       |                              | Microfuse, slow blow 10 AH 250 V                                     |                                                                                                                              |
| Power cord                          | <div>■ Europe</div> <div>■ USA/Canada</div> <div>■ Switzerland</div> <div>■ UK</div> <div>■ China</div> |                              |                                                                      |                                                                                                                              |

| Operating conditions                    |                                                                                                                  |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Place of use                            | For indoor use only                                                                                              |
| Operating altitude                      | ≤ 2,000 m [≤ 6,562 ft] above sea level                                                                           |
| Operating temperature                   | 0 ... 50 °C [32 ... 122 °F]<br>The ambient temperature influences the heating/cooling behaviour                  |
| Storage and transport temperature range | -10 ... +60 °C [14 ... 140 °F]                                                                                   |
| Humidity                                | < 80 % relative humidity to 31 °C [88 °F]<br>Linear decreasing by up to 50 % relative humidity at 40 °C [104 °F] |
| Condensation                            | Non-condensing                                                                                                   |
| Electrical safety                       |                                                                                                                  |
| Overvoltage category                    | II                                                                                                               |
| Pollution degree per IEC 61010-1        | 2                                                                                                                |

## Specifications for integrated measuring instrument

| Output signal      |                                     |
|--------------------|-------------------------------------|
| Analogue output    |                                     |
| Voltage supply     | DC 24 V (can be activated via menu) |
| Load               | Max. 24 mA                          |
| Switching function | NC, NO                              |

| Electrical connection      |                                  |
|----------------------------|----------------------------------|
| Number of channels         |                                  |
| Resistance thermometer     | 2                                |
| Thermocouple               | 2                                |
| Current signal             | 1                                |
| Voltage signal             | 1                                |
| Switch test                | 2                                |
| Connection type            |                                  |
| Resistance thermometer     | 4 x 4 mm banana sockets          |
| Thermocouple               | 2 x thermocouple terminal (mini) |
| Current and voltage signal | 4 mm banana sockets              |

| Electrical connection  |                                                             |               |
|------------------------|-------------------------------------------------------------|---------------|
| Pin assignment         |                                                             |               |
| Resistance thermometer | 2-wire connection<br>3-wire connection<br>4-wire connection |               |
| Measuring range        |                                                             |               |
| Resistance thermometer | Pt100                                                       | 0 ... 400 Ω   |
|                        | Pt1000                                                      | 0 ... 4,000 Ω |
| Thermocouple           | -10 ... +100 mV                                             |               |
| Current signal         | DC 0 ... 24 mA                                              |               |
| Voltage signal         | DC 0 ... 12 V                                               |               |

| Accuracy specifications | Measuring range                         | Accuracy            |
|-------------------------|-----------------------------------------|---------------------|
| Resistance thermometer  |                                         |                     |
| Pt100                   | -200 ... +850 °C [-328 ... +1,562 °F]   | ±0.03 K             |
| Pt500                   | -200 ... +850 °C [-328 ... +1,562 °F]   | ±0.12 K             |
| Pt1000                  | -200 ... +850 °C [-328 ... +1,562 °F]   | ±0.06 K             |
| Ni100                   | -60 ... +180 °C [-76 ... +356 °F]       | ±0.02 K             |
| Ni500                   | -60 ... +200 °C [-76 ... +392 °F]       | ±0.08 K             |
| Ni1000                  | -60 ... +200 °C [-76 ... +392 °F]       | ±0.04 K             |
| <b>Cold junction</b>    | -200 ... +1,820 °C [-328 ... +3,308 °F] | ±0.3 K              |
| Thermocouple            |                                         |                     |
| Type K                  | -160 ... +1,260 °C [-256 ... +2,300 °F] | ±0.08 K             |
| Type J                  | -190 ... +1,200 °C [-310 ... +2,192 °F] | ±0.07 K             |
| Type N                  | 0 ... 1,300 °C [32 ... 2,372 °F]        | ±0.13 K             |
| Type E                  | -200 ... +1,000 °C [-328 ... +1,832 °F] | ±0.06 K             |
| Type T                  | -130 ... +400 °C [-202 ... +752 °F]     | ±0.09 K             |
| Type R                  | 160 ... 1,760 °C [320 ... 3,200 °F]     | ±0.78 K             |
| Type S                  | 170 ... 1,760 °C [338 ... 3,200 °F]     | ±0.73 K             |
| Type B                  | 920 ... 1,820 °C [1,688 ... 3,308 °F]   | ±0.5 K              |
| <b>Direct current</b>   | 0 ... 24 mA                             | 0.01 % of end value |
| <b>DC voltage</b>       | 0 ... 12 V                              | 0.01 % of end value |

## Approvals

| Logo                                                                              | Description                                                                                                                 | Region         |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------|
|  | <b>EU declaration of conformity</b>                                                                                         | European Union |
|                                                                                   | EMC directive<br>EN 61326 emission (group 1, class A) and immunity (industrial environments)                                |                |
|                                                                                   | Low Voltage Directive<br>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. in residential or commercial areas, it can interfere with other equipment under certain circumstances. In such circumstances the operator is expected to take the appropriate measures.

## Certificates

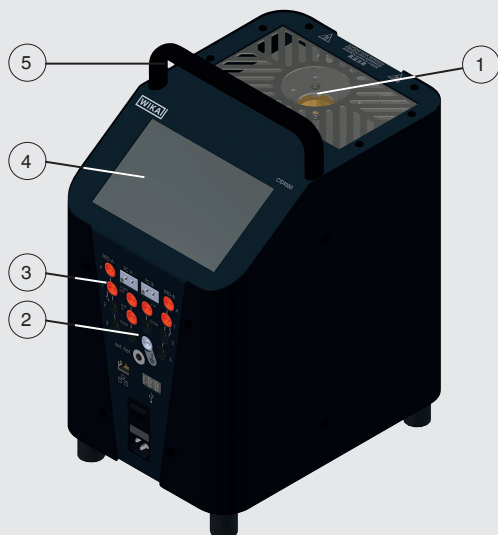
| Description                             |                                                                                                                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Calibration</b>                      |                                                                                                                                                                                                                     |
| Integrated measuring instrument         | <ul style="list-style-type: none"> <li>■ Without</li> <li>■ 3.1 inspection certificate per EN 10204 for RTD, TC, mA and V</li> <li>■ DAkkS calibration certificate for RTD, TC, mA and V</li> </ul>                 |
| External reference thermometer          | <ul style="list-style-type: none"> <li>■ Without</li> <li>■ 3.1 inspection certificate per EN 10204</li> <li>■ DAkkS calibration certificate (traceable and accredited in accordance with ISO/IEC 17025)</li> </ul> |
| Instrument                              | <ul style="list-style-type: none"> <li>■ 3.1 inspection certificate per EN 10204</li> <li>■ DAkkS calibration certificate (traceable and accredited in accordance with ISO/IEC 17025)</li> </ul>                    |
| <b>Recommended calibration interval</b> | 1 year (dependent on conditions of use)                                                                                                                                                                             |

→ For approvals and certificates, see website

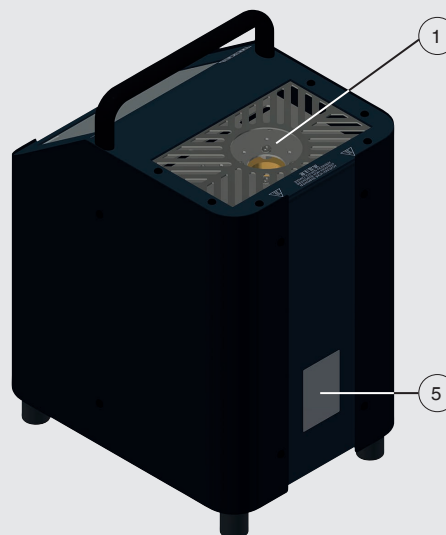


## Isometric views

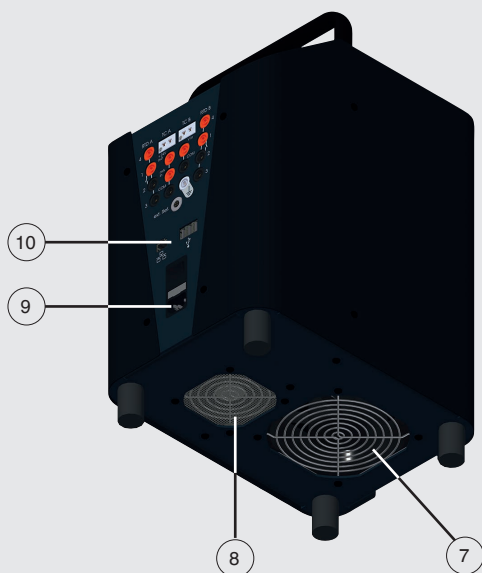
View from the front



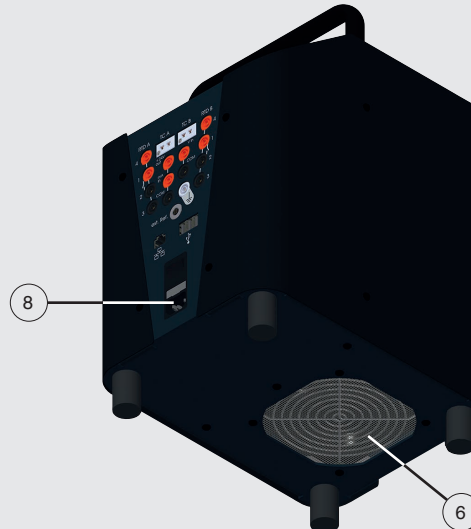
View from the rear



View from below, model CTD9350-165



View from the rear, model CTD9350-700



- ① Temperature dry well
- ② Connection for external reference sensor
- ③ Integrated measuring instrument
- ④ Digital indicator/display with touchscreen
- ⑤ Carrying handle
- ⑥ Product label

- ⑦ Fan 1: ventilation for temperature block cooling
- ⑧ Fan 2: ventilation for case cooling
- ⑨ Mains connection socket with main switch and microfuse
- ⑩ Interfaces for PC and network

## Accessories and spare parts

| Accessories for model CTD9350-xxxx                                                  |                                                                                                                                                                                               | Order code <sup>2)</sup> |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Description <sup>1)</sup>                                                           |                                                                                                                                                                                               | CTX-A-Kx                 |
|    | <b>Transport case with trolley frame</b>                                                                                                                                                      | -3-                      |
|    | <b>Insert replacement tool</b>                                                                                                                                                                | -A-                      |
|    | <b>External reference probe up to max. 255 °C [528 °F]</b><br>Dimension: Ø 3 x 300 mm [Ø 0.12 x 11.81 in]<br>Angled: 190 mm [7.48 in] – length from sensor tip                                | -E-                      |
|    | <b>External reference probe up to max. 700 °C [1,292 °F]</b><br>Dimension: Ø 4.5 x 300 mm [Ø 0.18 x 11.81 in]                                                                                 | -F-                      |
|    | <b>Insert for use as a temperature dry-well calibrator</b><br>Dimension: depending on the calibrator model<br>→ Drilled inserts are selected with the order code in CTA9I-xx                  | -G-                      |
|   | <b>Power cord</b><br>For the EU                                                                                                                                                               | -L-                      |
|                                                                                     | For Switzerland                                                                                                                                                                               | -M-                      |
|                                                                                     | For UK                                                                                                                                                                                        | -N-                      |
|                                                                                     | For USA/Canada                                                                                                                                                                                | -O-                      |
|                                                                                     | For China                                                                                                                                                                                     | -C-                      |
|  | <b>Electrical connection set</b><br>Consisting of:<br>■ Clamp connectors (4 x red, 4 x black and 1 x white)<br>■ 2 x thermocouple adapters<br>■ 2 x split ferrite cores<br>■ 2 x ferrite keys | -P-                      |
|  | <b>PC and network cable</b>                                                                                                                                                                   | -Q-                      |
| <b>Ordering information for your enquiry:</b>                                       |                                                                                                                                                                                               |                          |
| 1. Order code: CTX-A-Kx<br>2. Option:                                               |                                                                                                                                                                                               | ↓<br>[   ]               |

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

2) Order code changes depending on the calibrator model.

## Overview of the inserts and their order codes

| Model        | Description                                                                                     | Order code |
|--------------|-------------------------------------------------------------------------------------------------|------------|
| CTD9350-COOL | <b>Insert, standard</b><br>Dimension: Ø 28 x 150 mm [Ø 1.1 x 5.91 in]<br>Material: brass 2.0375 | CTA9I-3R   |

| Model         | Description                                                                                                   | Order code |
|---------------|---------------------------------------------------------------------------------------------------------------|------------|
| CTD9350-165   | <b>Insert, standard</b><br>Dimension: Ø 28 x 150 mm [Ø 1.1 x 5.91 in]<br>Material: brass 2.0375               | CTA9I-3R   |
| CTD9350-165-X | <b>Insert, standard</b><br>Dimension: Ø 60 x 163 mm [Ø 2.36 x 6.42 in]<br>Material: aluminium 3.4365          | CTA9I-3M   |
| CTD9350-165-X | <b>Insert, Air Shield</b><br>Dimension: Ø 60 x 152 mm [Ø 2.36 x 5.98 in]<br>Material: aluminium 3.4365        | CTA9I-3U   |
| CTD9350-450   | <b>Insert, standard</b><br>Dimension: Ø 60 x 150 mm [Ø 2.36 x 5.91 in]<br>Material: aluminium 3.4365          | CTA9I-3M   |
| CTD9350-450   | <b>Insert, Air Shield</b><br>Dimension: Ø 60 x 152 mm [Ø 2.36 x 5.98 in]<br>Material: aluminium 3.4365        | CTA9I-3V   |
| CTD9350-700   | <b>Insert, standard</b><br>Dimension: Ø 29 x 144 mm [Ø 1.14 x 5.67 in]<br>Material: aluminium-bronze 2.0966   | CTA9I-3S   |
| CTD9350-700   | <b>Insert, Air Shield</b><br>Dimension: Ø 29 x 144 mm [Ø 1.14 x 5.67 in]<br>Material: aluminium-bronze 2.0966 | CTA9I-3T   |

| Inserts for model CTD9350-xxx, standard                                             |                                                                                                                            | Order code |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------|
| Description <sup>1)</sup>                                                           |                                                                                                                            | CTA9I-xx   |
|   | <b>Undrilled insert</b>                                                                                                    | -N-        |
|  | <b>Drilled insert</b><br>Drilling depth: 145 mm [5.71 in]                                                                  | -          |
|                                                                                     | For thermometers up to 1.2 mm [0.05 in] diameter<br>Bore diameter: 1 x 1.5 mm [1 x 0.06 in]                                | -1-        |
|                                                                                     | For thermometers up to 1.6 mm [0.06 in] diameter<br>Bore diameter: 1 x 2 mm [1 x 0.08 in]                                  | -2-        |
|                                                                                     | For thermometers up to 2.7 mm [0.11 in] diameter<br>Bore diameter: 1 x 3 mm [1 x 0.12 in]                                  | -3-        |
|                                                                                     | For thermometers up to 3.2 mm [0.13 in] diameter<br>Bore diameter: 1 x 3.5 mm [1 x 0.14 in]                                | -4-        |
|                                                                                     | For thermometers up to 4.7 mm [0.19 in] diameter<br>Bore diameter: 1 x 5 mm [1 x 0.20 in]                                  | -5-        |
|                                                                                     | For thermometers up to 6.3 mm [0.25 in] diameter<br>Bore diameter: 1 x 6.5 mm [1 x 0.26 in]                                | -6-        |
|                                                                                     | For thermometers up to 7.2 mm [0.28 in] diameter<br>Bore diameter: 1 x 7.5 mm [1 x 0.30 in]                                | -7-        |
|                                                                                     | For thermometers up to 8.2 mm [0.32 in] diameter<br>Bore diameter: 1 x 8.5 mm [1 x 0.33 in]                                | -8-        |
|                                                                                     | For thermometers up to 9.5 mm [0.37 in] diameter<br>Bore diameter: 1 x 10 mm [1 x 0.39 in]                                 | -9-        |
|  | For thermometers up to 3.2 mm [0.13 in] diameter<br>Bore diameter: 1 x 5.0 mm and 1 x 3.5 mm [1 x 0.20 in and 1 x 0.14 in] | -I-        |
|                                                                                     | For thermometers up to 6.3 mm [0.25 in] diameter<br>Bore diameter: 1 x 5.0 mm and 1 x 6.5 mm [1 x 0.20 in and 1 x 0.26 in] | -X-        |
|                                                                                     | Bore diameter: 1 x 3.2 mm and 1 x 6.3 mm [1 x 0.13 in and 1 x 0.25 in]                                                     | -A-        |

| Inserts for model CTD9350-xxx, standard                                           |                                                                                                                                                         | Order code |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Description 1)                                                                    |                                                                                                                                                         | CTA9I-xx   |
|  | Bore diameter:<br>2 x 3.2 mm, 1 x 4.2 mm, 1 x 6.3 mm, 1 x 8.4 mm and 1 x 9.9 mm<br>[2 x 0.13 in, 1 x 0.17 in, 1 x 0.25 in, 1 x 0.33 in and 1 x 0.39 in] | -B-        |
|  | Bore diameter:<br>2 x 3.2 mm, 2 x 4.3 mm, 3 x 6.3 mm and 2 x 8.5 mm<br>[2 x 0.13 in, 2 x 0.17 in, 3 x 0.25 in and 2 x 0.34 in]                          | -M-        |
|                                                                                   | Bore diameter:<br>1 x 2.0 mm, 3 x 3.2 mm, 2 x 4.3 mm, 1 x 5.0 mm and 2 x 6.5 mm<br>[1 x 0.08 in, 3 x 0.13 in, 2 x 0.17 in, 1 x 0.2 in and 2 x 0.26 in]  | -Y-        |
| -                                                                                 | Customer-specific special inserts available on request.                                                                                                 | -?-        |
|  | <b>Insert replacement tool</b>                                                                                                                          | -J-        |
| Ordering information for your enquiry:                                            |                                                                                                                                                         |            |
| 1. Order code: CTA9I-xx<br>2. Option:                                             |                                                                                                                                                         | ↓<br>[   ] |

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

| Inserts for model CTD9350-xxx, Air Shield 1)                                        |                                                                                                                                                         | Order code |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Description 2)                                                                      |                                                                                                                                                         | CTA9I-xx   |
|    | <b>Undrilled insert</b>                                                                                                                                 | -N-        |
|  | <b>Drilled insert</b><br>Drilling depth: 145 mm [5.71 in]                                                                                               | -          |
|                                                                                     | Bore diameter: 1 x 3.2 mm and 1 x 6.3 mm [1 x 0.13 in and 1 x 0.25 in]                                                                                  | -A-        |
|                                                                                     | For thermometers up to 3.2 mm [0.13 in] diameter<br>Bore diameter: 1 x 5 mm and 1 x 3.5 mm [1 x 0.2 in and 1 x 0.14 in]                                 | -I-        |
|                                                                                     | For thermometers up to 6.3 mm [0.25 in] diameter<br>Bore diameter: 1 x 5 mm and 1 x 6.5 mm [1 x 0.2 in and 1 x 0.26 in]                                 | -X-        |
|  | Bore diameter:<br>2 x 3.2 mm, 1 x 4.2 mm, 1 x 6.3 mm, 1 x 8.4 mm and 1 x 9.9 mm<br>[2 x 0.13 in, 1 x 0.17 in, 1 x 0.25 in, 1 x 0.33 in and 1 x 0.39 in] | -B-        |
|  | Bore diameter:<br>2 x 3.2 mm, 2 x 4.3 mm, 3 x 6.3 mm and 2 x 8.5 mm<br>[2 x 0.13 in, 2 x 0.17 in, 3 x 0.25 in and 2 x 0.34 in]                          | -M-        |
|                                                                                     | Bore diameter:<br>1 x 2.0 mm, 3 x 3.2 mm, 2 x 4.3 mm, 1 x 5.0 mm and 2 x 6.5 mm<br>[1 x 0.08 in, 3 x 0.13 in, 2 x 0.17 in, 1 x 0.2 in and 2 x 0.26 in]  | -Y-        |
| -                                                                                   | Customer-specific special inserts available on request.                                                                                                 | -?-        |
|  | <b>Insert replacement tool</b>                                                                                                                          | -J-        |
| Ordering information for your enquiry:                                              |                                                                                                                                                         |            |
| 1. Order code: CTA9I-xx<br>2. Option:                                               |                                                                                                                                                         | ↓<br>[   ] |

1) The calibration can only be performed with an external reference. Suitable bore for the external reference must be available.

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

## Scope of delivery

- Temperature dry-well calibrator model CTD9350
- Power cord, 1.5 m [5 ft] with safety plug
- Insert replacement tools
- PC and network cable
- USB stick with backup function
- Protective packaging / Transport protection
- Operating instructions
- Calibration certificate

## Ordering information

Model / Temperature range / Protective conductor / Integrated measuring instrument / External reference thermometer / Calibration / Transport case / Power cord / Insert / Further approvals / Additional ordering information

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