UNION Instruments

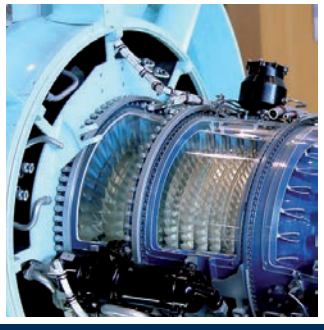
Measurement parameter

- Calorific value / heating value
- Wobbe index
- Specific density
- CARI, air requirement

Applications

- LNG-Terminals
- Offshore Process gas regulation
- Fuel regulation for gas turbines



CWD2005 CT

Calorimeter with type approval
for fiscal metering

The combustion calorimeters of the **CWD2005** (**C**alorimetry, **W**obbe Index, Specific **D**ensity) device series are used to determine the gas quality and the associated measured quantities:

- Calorific value / heating value
- Wobbe index
- Specific density

The **CWD2005 CT** (Custody transfer) combustion calorimeter has domestic type approval from the German National Metrological Institute (PTB 7.631 08.64) for custody transfer measurement of natural gases and processed biogas as per the German DVGW worksheets G 260 and G262.

The approved measuring range for the calorific value is:

- 8,4 bis 13,1 kWh/m³ or 30,2 bis 47,2 MJ/m³.

Figure 1: CWD2005 CT

Direct and continuous determination of gas quality by combustion calorimeter has been a proven, high-accuracy measurement principle for more than 60 years (see Table 1). During combustion of a defined gas volume, all gas components are thermally converted. The energy released in the process is proportional to the Wobbe index. The specific density of the gas is measured simultaneously so that the heating value can be calculated from these two values.

Because it also measures unexpected and unknown gas components, the CWD2005 DPC can be used with a rapidly changing gas composition, such as in the case of residual gases of chemical processes or synthetic gases in the steel industry.

In addition, the system provides a high level of safety in the event of a process shutdown or interruption of the gas supply by extinguishing its flame after a maximum of 10 seconds.

Technical data for CWD2005 CT

Gewicht	Ca. 54 kg
Abmessung B x H x T [mm]	720 x 1200 x 337
Schutzart	IP 50
Umgebungstemperatur	5 – 35 °C
Erlaubte Temperaturänderung	≤ 5 °C pro Stunde
Umgebungsfeuchte	0 – 95 % relative
Außendruck	800 – 1100 hPa (0.8 – 1.1 bar)
Eingangsdruck Gas	20 - 40 mbar
Eingang Prozessgas	1
Eingang Kalibriergas	1
Relative Gasfeuchte	≤ 95%, kondensatfrei
Eingangstemperatur Gas	Max. 45 °C
Kalibriergas	Methan, Reinheit 3.5
Kalibrierintervall	Mind. 1 x täglich
Verbrauch Kalibriergas	Ca. 7 l pro Kalibrierung, 30 – 40 l/h
Spannung	240 VAC, 50/60 Hz 110 VAC, 60 hz
Max. Leistungsaufnahme	200 VA
Schnittstellen	3 x Relais; RS232; 4 – 20 mA; Feldbus; Profibus-DP; Profinet IO; Modbus RTU/TCP; Industr. Ethernet
Anzeigezeit T90	15 sec
Zulassung	Innerstaatliche Bauartzulassung PTB 7.631 08.64

Table 1: Technical data CWD2005 CT

Calibration

In accordance with type approval 7.631 08.64 following calibration gas is to be used for calibration:

- Methane, purity 3,5.

This means a maximum impurity of 0.05 % (substance amount fraction). The purity has to be proofed with an official certificate. At least once a day there has to be an automatically calibration, when required smaller intervals are possible to choose. Additionally manual calibrations are possible at any time.

Fiscal verification

According to the Calibration Directive (annex B) an annual fiscal verification by the operator is to be done. Therefor 2 certificated calibration gases 3rd order (due to PTB-A 7,63) as normal for accuracy examination are needed.
The defined ambient conditions according to the approval as well as the requirements to the set-up conditions (PTB-A 7,62) shall be followed.

Technical drawing

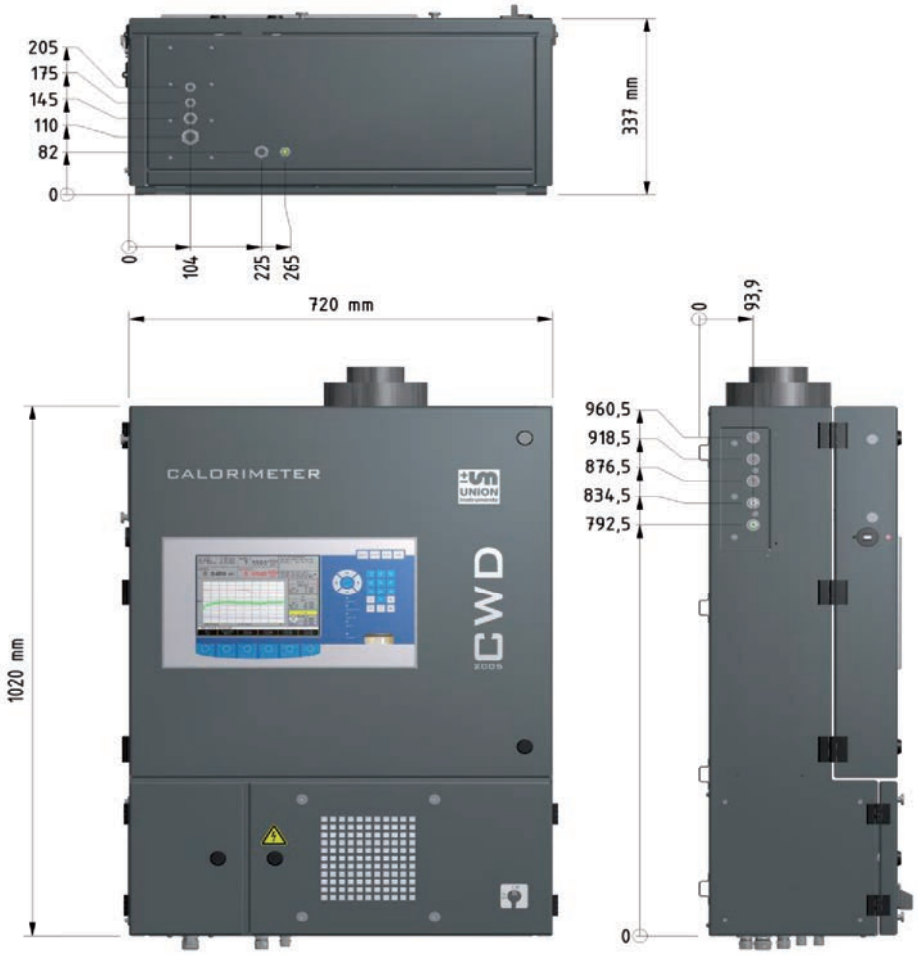


Figure2: CWD2005 CT

About UNION Instruments

UNION Instruments GmbH, founded in 1919, is a specialized supplier of measuring instruments in the areas of calorimetry and gas composition. Its user and customer base includes biogas producers, the chemical industry, and energy and water suppliers. The company has its headquarters in Karlsruhe and a subsidiary in Lübeck. With 30 international distributors, UNION Instruments operates worldwide. The company's core businesses include development and production as well as maintenance, service, and support.

Our service performance

Support

The **UNION-hotline** helps to solve all inquiries and urgent issues fast and easy. Device specific concerns can be solved worldwide within minutes by direct communication via TEAMVIEWER.

Original spare parts

Original spare parts for the majority of UNION's products are on stock directly at site and ready for dispatch within a few hours.

Software

For read-out of measurement and calibration data a device-specific software is available for our clients. In addition to the graphic display of measurement data its export in several database formats is possible.

Training

UNION offers individual in-house training or on-site seminars for installation, use and maintenance of our devices even at the customer's premises. Training is individually adapted to the client's requirements.

Repair service

A global service for inspection, maintenance and repair of our devices and systems is provided directly by UNION and via its distributors.

Certification

Since 20 years we have implemented the ISO9001 system.
UNION's products are certified to ATEX and UL/CSA directives accordingly. Industrial safety **"Safety with System"** is part of UNION's company policy.

Engineering

In the last decades UNION compiled a very high level to the state of the art that covers many market segments. So a wide range of possible solution approaches is on-hand.

Calibration

As part of maintenance and service UNION provides the validation and re-calibration of measuring devices in conformity with certified custody transfer instruments and / or traceable perpendicular.

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