

Calorimeter

# CWD DPC





Datasheet

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## Calorimeter with type approval for operation in potentially explosive atmospheres

The combustion calorimeters of the CWD (Calorimetry, Wobbe index, Specific Gravity) series are used to determine gas quality and the associated measured variables:

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

The CWD DPC (Direct Purge Certified) is a variant of the CWD for use in potentially explosive atmospheres (Class I Division 2 Groups B, C, D, T4). NRTL (Nationally Recognised Testing Laboratories) certification was carried out by SGS North America (SGS: Société Générale de Surveillance) and confirms compliance with the following standards:

- UL 61010-1, 3rd edition, May 11, 2012 (Electrical safety)
- NFPA 496, 2013 and
- ANSI/ISA 1212.01

The system is designed for installation in enclosed spaces with an external power and compressed air supply.

## Typical measuring ranges CWD DPC (others on request)

Application	Wobbe measuring range [MJ/m³] start	Wobbe measuring range [MJ/m³] end	Accuracy [%]
Natural gas	30	60	1 Measured value
Liquid gas air	30	60	1 FSR
Liquid gas air extended measuring range	30	80	1 FSR
Biogas	14,5	25	1 FSR
Mixed gas	Various mixed gases – details available on request		
Coke oven gas	19	29	1 FSR
Refinery gas	25	70	1 FSR
Combustible gas	0 10	30 40	1 FSR
Flare gas	0 0	118 90	2 FSR

The direct and continuous determination of gas quality using combustion calorimeters is a measurement principle that has been proven for more than 60 years and offers a high degree of accuracy. When a defined volume of gas is combusted, all gas components are thermally converted. The energy released in this process is proportional to the Wobbe index. At the same time, the specific density of the gas is measured so that the calorific value can be calculated from these two variables.

The detection of unexpected or unknown gas components enables the CWD DPC to be used particularly in cases of rapidly changing gas compositions, e.g. residual gases from chemical processes or substitute gases in the steel industry. In addition, the system offers a high level of safety when processes are shut down or the gas supply is interrupted by extinguishing the flame after a maximum of 10 seconds.

The measuring principle is free of cross-sensitivities to individual gas components such as O<sub>2</sub>, H<sub>2</sub> or CO.

## Technical specifications CWD DPC

Weight	up to 85 kg
Dimensions H x W x D (mm)	1860 x 825 x 415
Protection class	IP50
Ex classification	Class I, Div. 2, Group B, C, D, T4
Ambient temperature	5 °C–45 °C
Ambient humidity	0–95 % relative
External pressure	800–1100 hPa (0.8–1.1 bar)
Gas inlet pressure	30–40 mbar
Process gas inlet	1, additional optional
Test gas inlet	1 per measuring range
Support Gas inlet	max. 1
Relative gas humidity	≤ 95 %, condensate-free
Instrument air consumption	25 m³/h (standard condition)
Instrument air pressure	min. 5 bar, max. 10 bar
Voltage	240 VAC, 50/60 Hz; 110 VAC, 60 Hz
Interfaces	8 SPDT Relais 3x 4. 20 mA, additional optional buses optional
T90 display time	≤ 15 sec
Licence	USTC/14/FAI/00983 (customer reference 710162)
Approval of junction box	IECEX PTB 09.0048 PTB ATEX 1108



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