

**Analyser for measurement of Wobbe-Index, Air demand, Density and Calorific Value
RHADOX 7300 / 7300 Ex**



The Application:

As economic alternative to fossil fuels in industrial furnaces the use of caloric Off-gases from industrial processes has become common in the past years. The composition of these Off-gases is subject to high fluctuations due to the origin of the gases. In order to mix the Off-gases with other gaseous fuels it is important to measure, besides the Wobbe-Index and the Air demand, the Density and the Calorific Value.

The Measuring principle:

The principle of the RHADOX™ Analysers for measurement of Wobbe-Index and Air demand in industrial Off-gases is based on the determination of the Air demand to achieve complete combustion. A sample of the fuel gas and air are brought to identical temperature and pressure and are mixed homogenous. The resulting gas and air mixture is then oxidised in a catalytic reactor. During oxidation the Oxygen content of the gas mixture is measured continuously. By integrating the calibration parameters Wobbe-index and Air demand are measured. The RHADOX 7300 is equipped with an additional mixing chamber to measure the flow of the already conditioned Gas-Air mixture. The result is a precise measurement of the Gas density. From the measured values Wobbe-Index and Gas density the Calorific value of the Gas is determined.

The Measuring system:

The RHADOX™ is installed in an analyzer cabinet, according to pneumatic and electronic part, housed separately. The housings of the components are manufactured for General Purpose in protection class IP 65. If required the RHADOX™ Analysers can also be supplied as integrated system installed in a analyser shelter including gas monitoring. The analyser shelter does not have to be air conditioned. However the operating temperature has to be observed (see technical data below). The Wobbe-Analyser RHADOX 7300 is calibrated by using two calibration gases which represent the low and high measuring range which have to be determined for every Off-gas individually. The calibration is started manually from the analyser main menu. Integrated automation components allow access to the system by remote control. The RHADOX™ Analysers are available for use in hazardous areas classified as Zone 1 and 2. The RHADOX™ Analysers are designed for continuous operation in industrial applications.

Technical Data

	RHADOX 7300 / 7300 Ex
Ex-classification	ATEX II 2G Ex pxb IIB+H2 T4 Gb X (Ex-Zone 1) ATEX II 3G IIB+H2 T3 Gc (Ex-Zone 2)
Measuring Ranges	
Air demand [CARI]	smallest measuring span 1,5 m3 Air / m3 Gas largest measuring span 30 m3 Air / m3 Gas
Wobbe-Index [Wi]	smallest measuring span 5 MJ / m3 largest measuring span 120 MJ / m3
Specific Gravity [SG]	smallest measuring span 0,5 largest measuring span 3,0
Calorific value [LCV]	smallest measuring span 5 MJ / m3 largest measuring span 140 MJ / m3
Analogue output	4* 4 ... 20 mA, galvanically separated
Reproducibility	
Air Demand & Wobbe-Index	≤ 1,0 % of the measuring value
Spec. Gravity and Cal. Value	1,0 % ... 2,0 % of the measuring value
Temperature drift	< 0,02 % / K, relative to end of measuring range
Long term drift	≤ 2 % of measuring value / Month
T90-Time	10...30 seconds, depending on viscosity of the measuring gas
Display	2* 16 digit back-lit LCD display
Messages	1 System message (Measuring value yes / no) 3 Messages (Indication of operating status) Service, Calibration, Error messages
Digital Communication	serial Interface RS232
Option	RS 485; Ethernet
Ambient temperature	from - 5 °C to + 45 °C
Operating temperature	from + 5 °C to + 60 °C
Gas connections	
Inlet / Outlet	6 / 12 mm, Ferrule pack, stainless steel
Gas flow volume	Measuring gas 20 ... 100 NI/h Instrument Air 50 ... 500 NI/h (depending on Air demand)
Gas pressure (at Inlet)	Gas ≥ 0,5 bar (g), max. 17 bar (g) instrument air ≥ 2 bar (g), max. 8 bar (g)
Power supply	115 or 230 VAC / 50 - 60 Hz, 350 VA
Protection class / Housing	IP65 / 1000 x 900 x 350 mm (HxWxD)
Weight	~100... 125 kg depending on options and protection class
Options	Integrated catalytic converter of by-pass gas Oxygen Measurement of the raw sample gas Auto-calibration
Version: AMS RH7300 E V-2022-01	

Technical data subject to change