



Online Oil Analysis
MSENSE[®] DGA 9

Data Sheet

03/2021



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The MSENSE® DGA 9 is manufactured for
Maschinenfabrik Reinhausen GmbH by:

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MSENSE® DGA 9 Multi Gas-in-Oil Analysis System

The MSENSE® DGA 9 is a permanently installed multi gas online DGA analysis system. It enables the individual measurement of **moisture in oil (H₂O)** as well as the key gases dissolved in oil - **hydrogen (H₂)**, **carbon monoxide (CO)**, **carbon dioxide (CO₂)**, **acetylene (C₂H₂)**, **ethylene (C₂H₄)**, **methane (CH₄)**, **ethane (C₂H₆)**, and **oxygen (O₂)**.

Product Variants

Power Supply
230 V -20% +15% AC 50/60 Hz
120 V -20% +15% AC 50/60 Hz

Valve Connection
G 1½" DIN ISO 228-1
1½" NPT ANSI B 1.20.1

Communication
RS 485 Modbus RTU, TCP (standard)
Ethernet RJ45 or fiber optical (standard, optionally)
DNP3 modem RS-485 (optionally)
IEC 61850 modem RJ45 (optionally)
IEC 61850 modem fiber (optionally)

Technical Data

General	
Power consumption	max. 600 VA
Housing	Aluminum
Dimensions	W 263 x H 263 x D 327.5 mm
Weight	ca. 15 kg
Operating temperature (ambient)	-55°C ... +55°C
Oil temperature (inside transformer)	-20°C ... +90°C
Storage temperature (ambient)	-20°C ... +65°C
Oil inlet pressure	0 - 300 kpa (negative pressure permissible)
Safety	CE certified
Insulation protection	IEC 61010-1:2002
Protection class	IP 55

10 x analog outputs	Default (free assignment)
0/4...20 mA	Hydrogen H ₂
0/4...20 mA	Acetylene C ₂ H ₂
0/4...20 mA	Ethylene C ₂ H ₄
0/4...20 mA	Carbon monoxide CO
0/4...20 mA	Oil moisture H ₂ O
0/4...20 mA	Carbon dioxide CO ₂
0/4...20 mA	Ethane C ₂ H ₆
0/4...20 mA	Methane CH ₄
0/4...20 mA	Oxygen O ₂
0/4...20 mA	TDCG

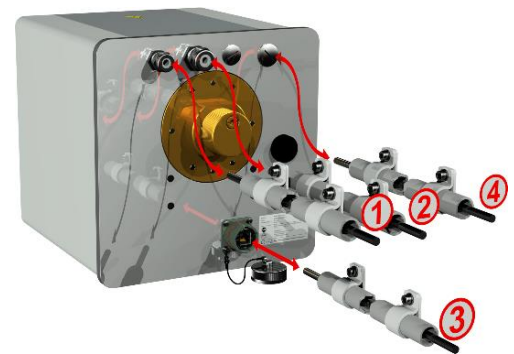
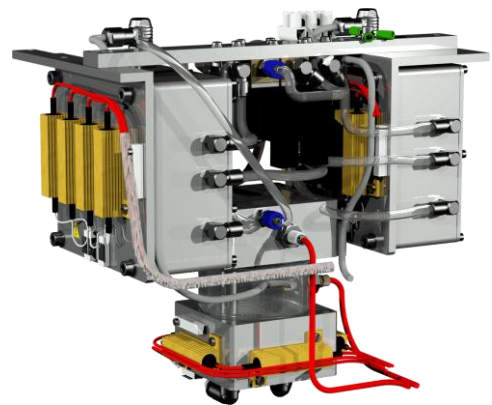
10 x relay outputs	Max. switching capacity
12 VDC	220 VDC/VAC / 2 A / 60 W

Measured values	Measuring range	Accuracy ^{1) 2) 3) 4)}
Hydrogen	H ₂ 0...10 000 ppm	± 15% or ± 25ppm
Carbon monoxide	CO 0...10 000 ppm	± 20% or ± 25ppm
Carbon dioxide	CO ₂ 0...20 000 ppm	± 20% or ± 25ppm
Methane	CH ₄ 0...5 000 ppm	± 20% or ± 25ppm
Acetylene	C ₂ H ₂ 0...10 000 ppm	± 20% or ± 5ppm
Ethylene	C ₂ H ₄ 0...10 000 ppm	± 20% or ± 10ppm
Ethane	C ₂ H ₆ 0...10 000 ppm	± 20% or ± 15ppm
Oxygen	O ₂ 0...50 000 ppm	± 10 % or ± 1000 ppm
Moisture in mineral oil	H ₂ O 0...100%	± 3%
Moisture in mineral oil	0...100 ppm	± 3% or ± 3ppm

1) Combined accuracy of gas extraction and gas measurement

2) In relation to ambient temperature +20°C and oil temperature +55°C

3) Accuracy of oil moisture for mineral oil types 4) Depending on which is larger

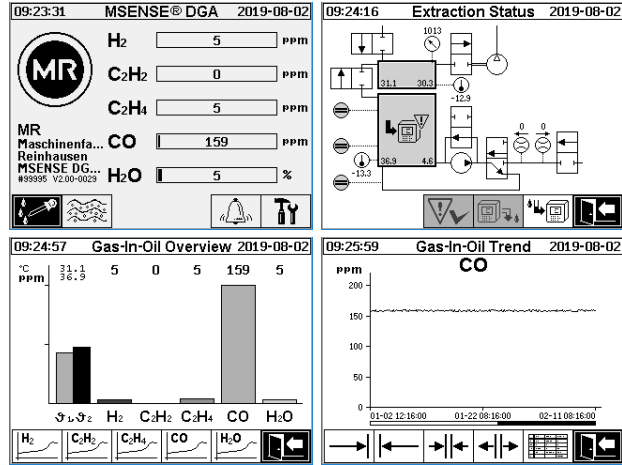


Operation

Controls at the device	
Display	Graphical LCD
Keys	17 operating keys

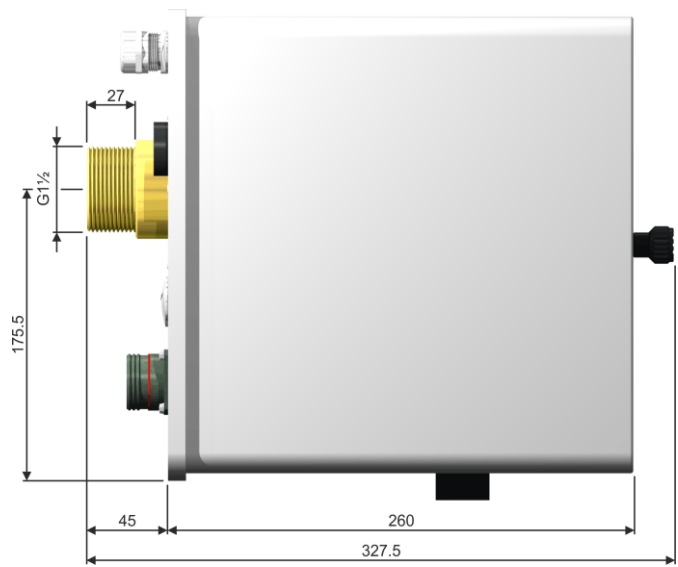
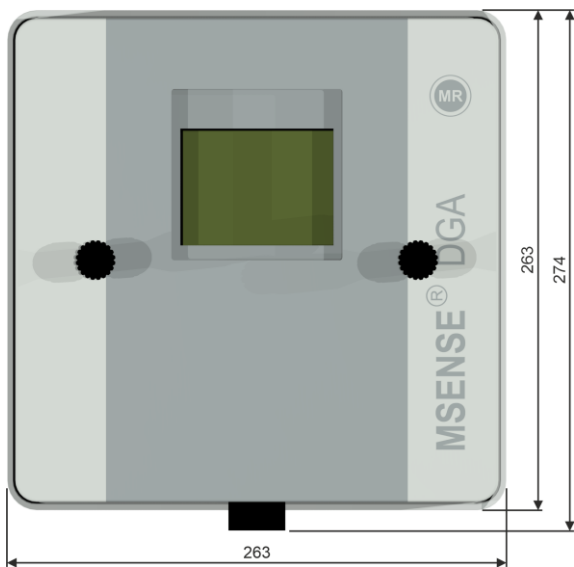


MSENSE® DGA 9 controls



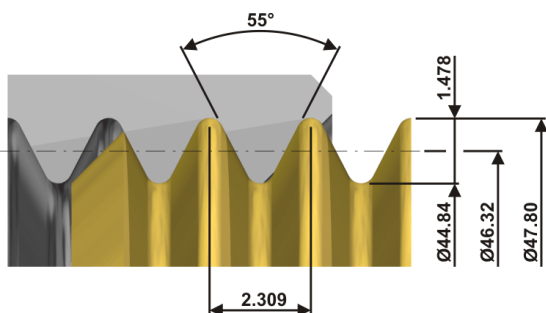
Sample screens

Dimensions



Valve connection (specify when ordering)

Pipe thread G 1½" DIN ISO 228-1



Pipe thread 1½" NPT ANSI B 1.20.1

