

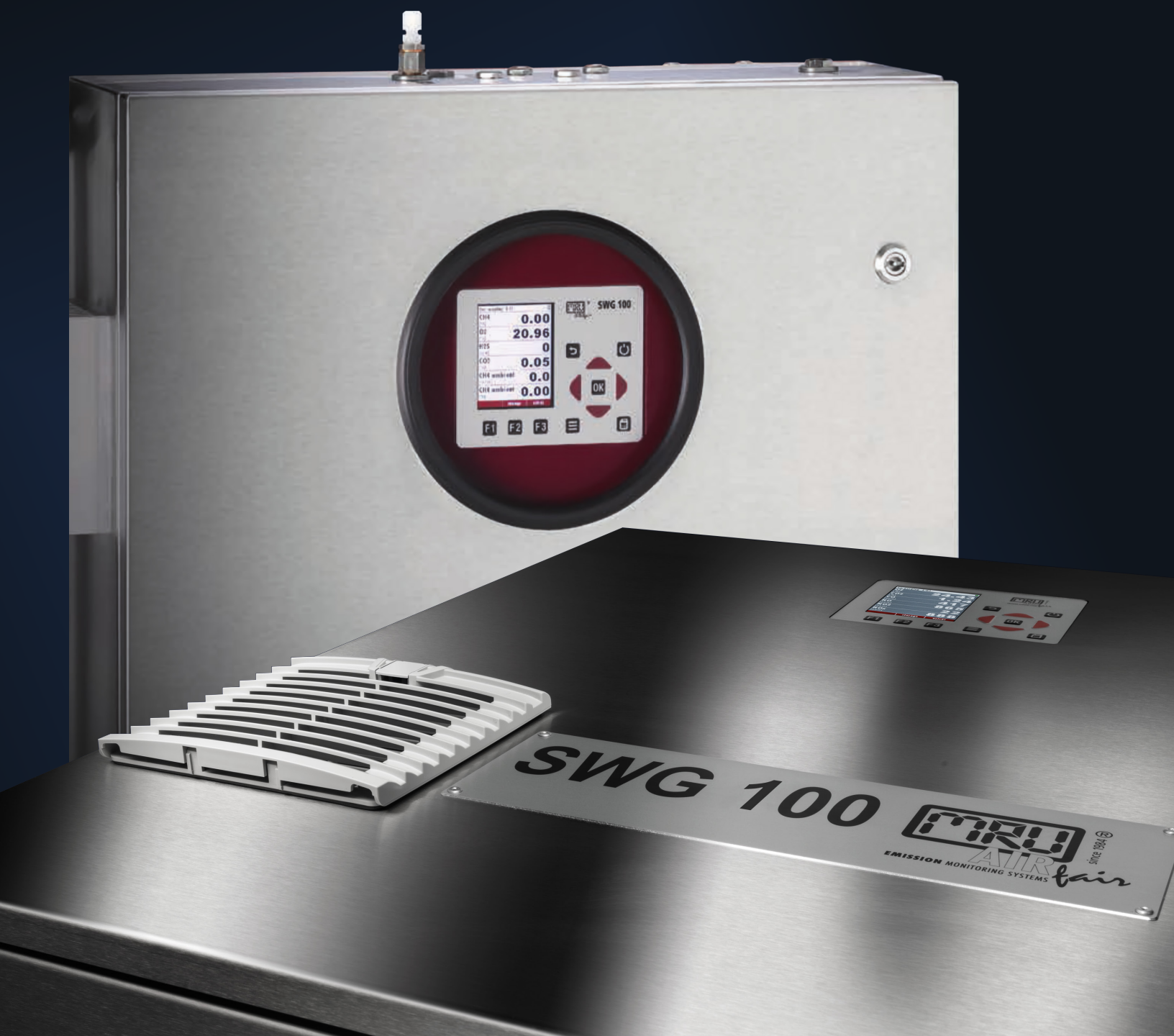


SYNGAS ANALYZERS

STATIONARY Syngas-Analyzers for continuous measurements

For safe area as well as ZONE 2

O₂ | CO₂ | CO | CH₄ | H₂ | H₂S



SWG 100 SYNGAS

The stationary analyzer for continuous Syngas measurements

The MRU analyzer, SWG100 Syngas has been developed for use in safe, industrial areas and laboratories.

The analyzer can be installed in outdoor or indoor locations, it can sample dry or wet syngas, for high or low pressure applications, low pressurized gas can be used for multiple sampling points.

Applications

- Biomass, coal and waste gasification plants
- Co-generation heat and power engines (CHP) using syngas
- Small scale syngas analysis for research institutes and labs

We offer you these special advantages

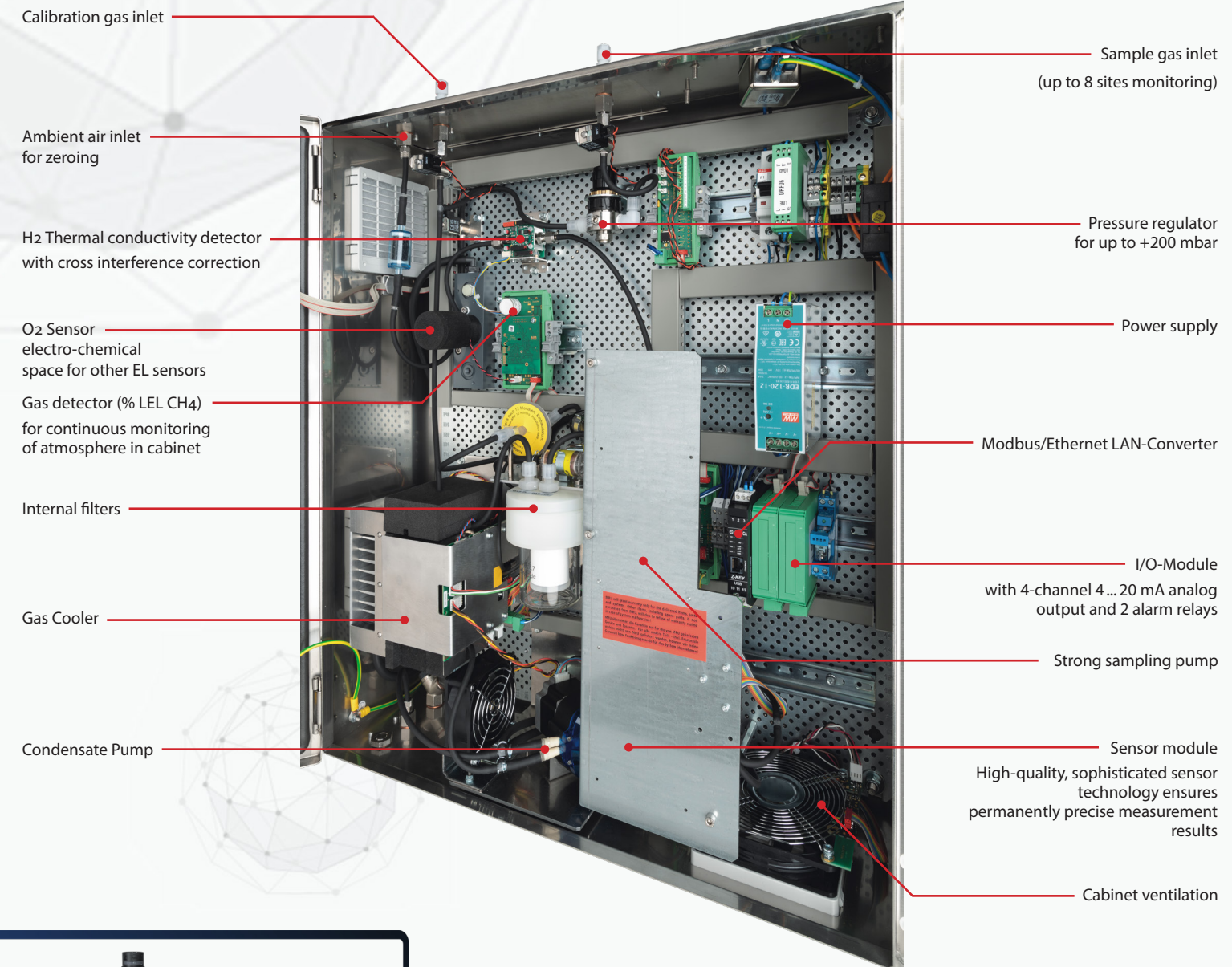
- IP54 stainless steel cabinet, also for use in outdoor condition with sun and rain cover
- Accurate measurements, using electrochemical, infrared and thermal conductivity technology
- Sampling from low suction –100 mbar up to high pressure +200 mbar of gas pipes
- No dilution of sample gas is required
- Integrated gas cooler with condensate draining pump
- Direct and continuous measurement, with pressure and temperature compensation
- Multiple sampling point monitoring (up to 8 sites monitoring) with one analyzer
- Flow restrictor orifice gas inlet for high pressure site
- With sample gas cut-off and power supply shut-off in case of alarm
- Industry compatible rugged design, easy and fastest service design
- Ready to run delivery, minimum installation work

Options

- NDIR module for CO-CO₂-CH₄ analysis (using selective CH₄ measurement)
- NDIR modules are available in % as well as ppm ranges
- O₂ long life electrochemical or paramagnetic cell measurement
- H₂S electrochemical cell measurement, H₂ immune
- H₂ thermal conductivity detector measurement with cross interference correction
- RS485 to USB or Profibus or Ethernet converter
- I/O modules with 4 channel 4–20 mA analog output and 2 alarm relays
- Sample gas washing device, for tar free sample gas
- Different lengths of heated and temperature regulated sampling lines

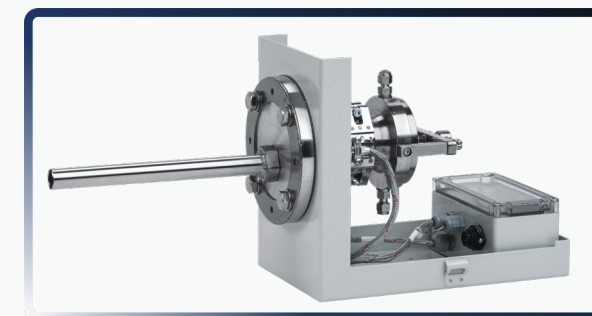
The device in detail

An overview of the special features



Sample gas washing device

for tar removal in sample gas using Diesel filled glass bottles, incl. integrated temperature regulation for heated sampling line



Gas sampling probe

for syngas with tar or acid mist and heavy hydrocarbons. With quartz wool filter, DN65 stainless steel flange and regulated heating



Flame arrestor

placement at gas sampling point or at gas inlet of analyzer

SWG 100 SYNGAS EX

The stationary analyzer for continuous Syngas measurements in **ZONE 2**

for use in industrial safe or hazardous area Zone 2, or in areas with an increased safety levels

The analyzer can be installed in outdoor or indoor locations, it can sample dry or wet syngas, for high or low pressure applications, low pressurized gas can be used for multiple sampling points.

We offer you these special advantages

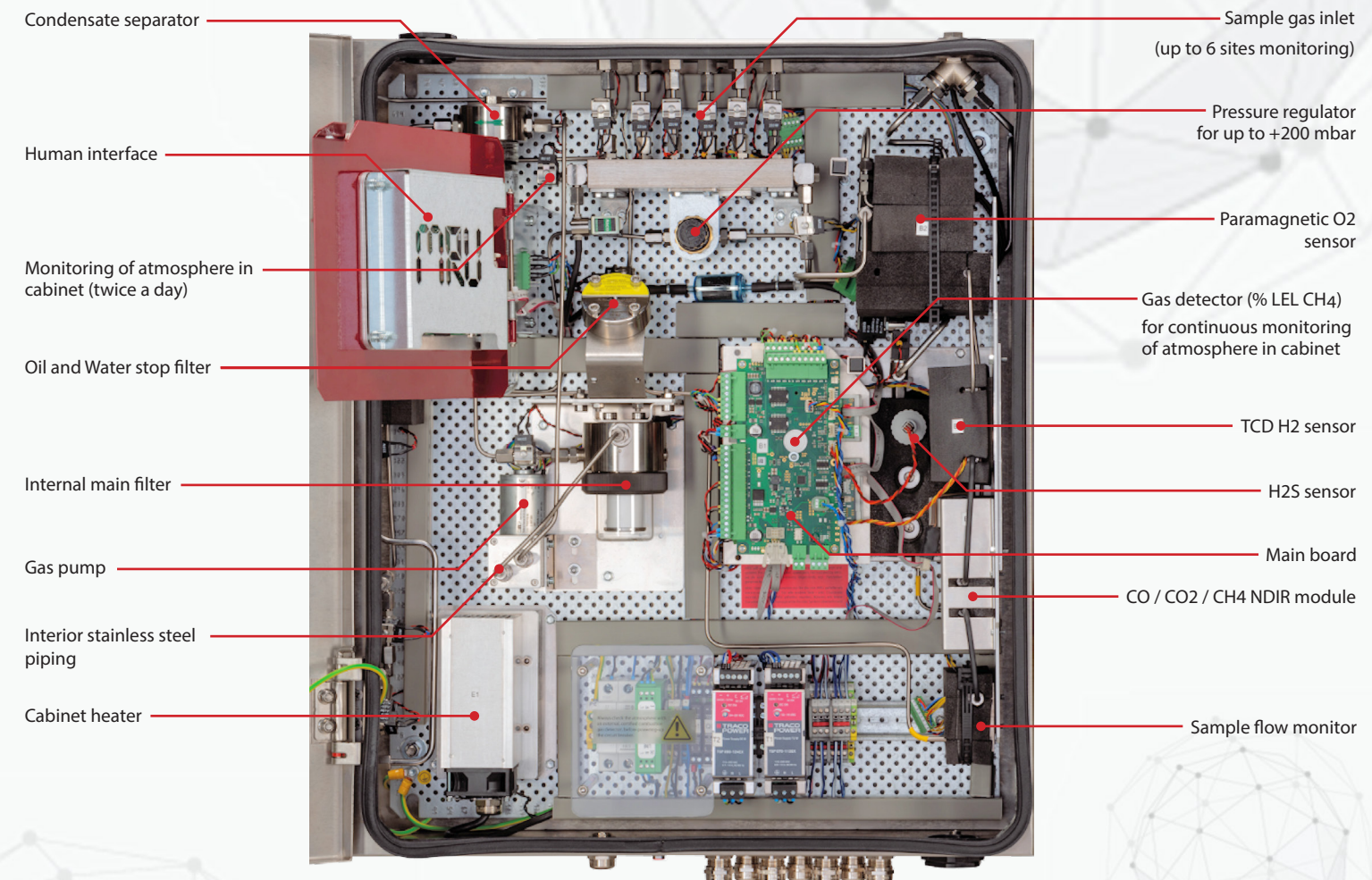
- For use in industrial safe or hazardous area Zone 2, or in areas with an increased safety level
- IP65 stainless steel cabinet, also for use in outdoor with mandatory sun and rain protection
- All stainless steel piping and fittings inside the analyzer
- Accurate measurements, using NDIR and thermal conductivity technology
- Sampling from low suction -100 mbar up to high pressure +200 mbar gas pipe
- Direct measurement (no dilution) of moisture sample gas, with pressure and temperature compensation
- Multiple sampling point monitoring (up to a total of 6 gas ports plus 1x calibration gas port) with one analyzer
- Optionally, up to 3 sample gas ports can be additionally configured as calibration gas port
- Flow restriction at the gas inlet for high-pressure systems with sample gas cut-off in case of system alarm (e.g. gas leakage)
- Note: All sample gas inputs use the same process gas recirculation!
- Industry compatible rugged design, easy and fastest service design
- Ready to run delivery, minimum installation work

Options

- NDIR bench for CO-CO₂-CH₄ analysis (using selective CH₄ measurement)
- O₂ paramagnetic cell measurement
- H₂S electrochemical cell measurement, H₂ immune
- H₂ thermal conductivity detector measurement with cross interference correction
- RS485 to USB or Profibus or Ethernet converter
- I/O modules with 4 channel 4–20 mA analog output and 2 alarm relays
- Sample gas washing device, for tar free sample gas
- Different extraction probes are available, certified for ZONE 2
- Different lengths of heated and temperature regulated sampling lines

The device in detail

An overview of the special features



Gas sampling probe

Probe for clean syngas - no tar - no soot - no oils for EX Zone 2



Flame arrestor

placement at gas sampling point or at gas inlet of analyzer

SWG 100 SYNGAS

TECHNICAL DETAILS

Measured components		Method	Range	Resolution	Accuracy
CO	Carbon Monoxide	NDIR	0 ... 100%	0.01 Vol.-%	0.2 Vol-% or 2% reading** or 0.1 % of reading after calibration**
CO2	Carbon Dioxide	NDIR	0 ... 100%	0.01 Vol.-%	0.2 Vol-% or 1% reading** or 0.1 % of reading after calibration**
CH4	Methane	NDIR	0 ... 100%	0.01 Vol.-%	0.2 Vol-% or 1% reading** or 0.1 % of reading after calibration**
CO	Carbon Monoxide	NDIR	0 ... 3,000 / 30,000 ppm	1 ppm	± 10 ppm or 3 % reading**
CO2	Carbon Dioxide	NDIR	0 ... 3,000 / 30,000 ppm	1 ppm	± 10 ppm or 3 % reading**
CH4	Methane	NDIR	0 ... 3,000 / 30,000 ppm	1 ppm	± 10 ppm or 3 % reading**
O2	Oxygen	Electro-chemical	0 ... 25%	0.01 Vol.-%	0.2% absolute
O2	Oxygen	Paramagnetic	0 ... 25%	0.01 Vol.-%	0.1% absolute
H2S	Hydrogen Sulfide	Electro-chemical	0 ... 2,000 /5,000 ppm*	1 ppm	10 ppm or 10% reading**
H2	Hydrogen	TCD	0 ... 1.00 / 50%	0.01 %	0.2% or 2% reading**

Calculated values		
N2	Nitrogen	Difference to 100%
	Calorific value	0 ... 50 MJ/m³ or MJ/kg

General technical data	
HMI (human machine interface)	<ul style="list-style-type: none">■ 3.5" TFT color display■ Keyboard, password protected operation■ 4 x analog output 4–20 mA, floating, max. load 500 R■ 4 x analog input 4–20 mA, passive inputs■ 2 alarm relays, potential free contacts 24 Vdc/5 A■ RS485 digital interface (Modbus RTU)
System safety components	<ul style="list-style-type: none">■ Monitored cabinet atmosphere using Pellistor sensor for LEL detection■ Stainless steel flow restrictor orifice■ Sample gas shut-down solenoid valve■ Power supply cut-off in case of system alarm
Sample conditioning	<ul style="list-style-type: none">■ Stainless steel gas fittings with 1/8" ID threads■ Electric gas cooler (Peltier) with constant dew point +5° C■ Teflon particulate filter, internal Viton hosing■ Sampling syngas with condensate of max. 14 ml/min■ Monitored and regulated sample gas flow 60 l/h■ Sample gas inlet pressure: –100 mbar to + 200 mbar■ Sample gas venting: atmospheric pressure
Enclosure dimensions	27.55"x 23.61"x 8.26" (700 x 600 x 210mm) (H x W x D) for wall or rack mounting
Weight	99 lbs. (45 kg)
Protection class	IP54, stainless steel
Operating conditions	41 ... 113 °F (+5 ... +45 °C) or 14 ... 113 °F (-10 ... +45 °C) with cabinet heating
Cabinet conditioning	Cabinet heater 300 W
Power supply	Universal 90–240 Vac / 47–63 Hz / 200 W, 500 W with heater
Installation site	Indoor or outdoor (with sun/rain protection cover)

Technical data to change without notice | N-9513EN-SYNGAS-0M-0222 | * overload measuring range | ** the higher value applies | EC = Electrochemical sensor, NDIR = Non dispersive infrared spectroscopy

SWG 100 SYNGAS EX

TECHNICAL DETAILS

Measured components		Method	Range	Resolution	Accuracy
CO	Carbon Monoxide	NDIR	0 ... 100%	0.01 Vol.-%	0.2 Vol-% or 2% reading** or 0.1 % of reading after calibration**
CO2	Carbon Dioxide	NDIR	0 ... 100%	0.01 Vol.-%	0.2 Vol-% or 1% reading** or 0.1 % of reading after calibration**
CH4	Methane	NDIR	0 ... 100%	0.01 Vol.-%	0.2 Vol-% or 1% reading** or 0.1 % of reading after calibration**
O2	Oxygen	Paramagnetic	0 ... 25%	0.01 Vol.-%	0.1% absolute
H2S	Hydrogen Sulfide	Electro-chemical	0 ... 2,000 / 5,000 ppm*	1 ppm	± 10 ppm / 5 % (0 ... 500 ppm) / 10 % (> 500 ppm)
H2	Hydrogen	TCD	0 ... 1.00 / 100%	0.01 %	0.5% or 2% reading**

Calculated values		
N2	Nitrogen	Difference to 100%
	Calorific value	0 ... 50 MJ/m³ or MJ/kg

General technical data	
HMI (human machine interface)	<ul style="list-style-type: none">■ 3.5" TFT color display■ Keyboard, password protected operation■ 4 x analog output 4–20 mA, floating, max. load 500 R■ 4 x analog input 4–20 mA, passive inputs■ 2 alarm relays, potential free contacts 24 Vdc/5 A■ RS485 digital interface (Modbus RTU)
System safety components	<ul style="list-style-type: none">■ Multi-stage, monitored enclosure atmosphere■ Stainless steel flow restrictor orifice■ Sample gas shut-down solenoid valve■ Power supply cut-off in case of system alarm
Sample conditioning	<ul style="list-style-type: none">■ Stainless steel gas fittings with 1/8" ID threads■ Electric gas cooler (Peltier) with constant dew point +5° C■ Teflon particulate filter, internal Viton hosing■ Syngas condensate pump with ejector■ Monitored and regulated sample gas flow 60 l/h■ Sample gas inlet pressure: –100 mbar to + 200 mbar■ Sample gas venting: atmospheric pressure
Enclosure dimensions	27.55"x 23.61"x 8.26" (700 x 600 x 210mm) (H x W x D) for wall or rack mounting
Weight	143 lbs. (65 kg)
Protection class	IP65, stainless steel
Operating conditions	41 ... 113 °F (+5 ... +45 °C) or 14 ... 113 °F (-10 ... +45 °C) with cabinet heating
Cabinet conditioning	Cabinet heater 300 W
Power supply	Universal 90–240 Vac / 47–63 Hz / 200 W, 500 W with heater
Installation site	Indoor or outdoor (with sun/rain protection cover)

Technical data to change without notice | N-9513EN-SYNGAS-0M-0222 | * overload measuring range | ** the higher value applies | EC = Electrochemical sensor, NDIR = Non dispersive infrared spectroscopy



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