



PORTABLE BREATHING AIR QUALITY ANALYZER

For analysis of O₂, CO₂, CO, H₂O, Oil and Pressure acc. international standards EN 12021 and CFSR 1910.134(d)

Ultra-portable Analysis of Breathing Air Quality

Introduction

The S605 Breathing Air Analyzer offers a pioneering solution designed to ensure the highest standards of safety and quality in breathing air filling stations and breathing air systems. This state-of-the-art analyzer combines advanced technology with exceptional portability, making it the ideal choice for a wide range of industries and applications. The automated measurement makes it easy to use and minimizes the risk of error.

Monitoring of relevant parameters

Equipped with advanced sensors, the S605 measures all important parameters such as oxygen levels (O₂), carbon dioxide levels (CO₂), carbon monoxide concentration (CO), dew point and oil vapor. The high precision of the sensors ensures accurate measurements, giving the user the opportunity to maintain optimal air quality and prevent potential health risks.

Complies with all international standards

The S605 breathing air analyzer complies with all relevant standards, such as EN 12021 and CFR 1910.134(d). The S605 has all limit values programmed for various international standards. The user only needs to select and confirm the desired standard when starting the measurement.

Ultra-portable and flexible

One of the key features of the S605 is its compact and lightweight design, which allows for easy transport and use in various environments where this portable analyzer provides instant access to important information about the air you breathe.



ALL IN ONE

O₂, CO₂, CO, H₂O,
Oil, Pressure



PLUG & PLAY

Simple connection
to your system



PORTABLE DEVICE

Can be carried
with one hand



HIGH PRECISION

Accurate
measurements



COMPACT DESIGN

Simple and
efficient handling



COMMUNICATION INTERFACE

Modbus TCP/RTU,
4G-Modem



Benefits

- ✓ All-in-one Instrument measures O₂, CO₂, CO, Dew Point and Oil Vapor simultaneously in the breathing air
- ✓ Portable and lightweight measuring device in a robust carry case
- ✓ Testing quality of breathing air according to national and international standards
- ✓ Software guided measurement makes it easy to generate reliable results and reports
- ✓ Only one gas inlet for all parameters
- ✓ Integrated data logger saves data for later analysis

Real-time breathing air quality measurements

The purity of the breathing air is vital for the operators health and safety. It is essential to have regular purity checks of the supplied air.

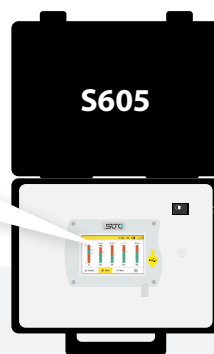
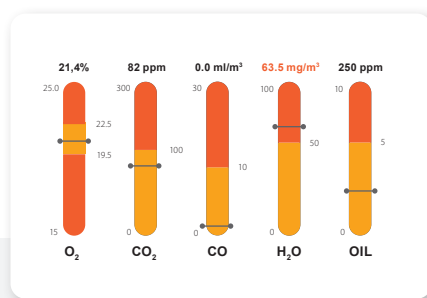
The SUTO S605 Portable Breathing Air Quality Analyzer, measures O₂, CO₂, CO, Dew Point, Oil Vapor and Pressure as defined in the breathing air purity standards and instantly shows the measured values on the touch screen display.

The robust design, quick sensor response times, and a user-friendly user interface ensures reliable and quick measurements, resulting in maximum protection for the people using air for breathing applications.

It is smarter, faster and more convenient than the traditional methods.

Monitoring of all breathing air parameters

O ₂	Oxygen	CO	Carbon Monoxide
CO ₂	Carbon Dioxide	H ₂ O	Humidity
According to all relevant national and international standards		OIL	Oil Residues



4G Remote Connection to S4A Monitoring Software

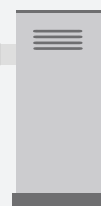
Breathing Air



Environment



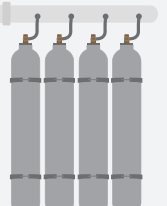
Compressor



Purification



Air Receiver Tank



Reserve Air System

7 in 1 Measurement Device

- O₂

Oxygen Measurement

For safety reasons, it is recommended to measure the oxygen level in the breathing air. The optical oxygen sensor monitors the O₂ content and indicates deviations from the standard concentration.
- CO₂

Carbon Dioxide Measurement

The intake air may also be exposed to increased concentration of carbon dioxide. Filter material used in compressed air can adsorb, but also release CO₂. The gas is measured by the NDIR sensor to avoid extreme concentrations above 1000 ppm.
- CO

Carbon Monoxide Measurement

The compressor intake air may be contaminated with CO due to nearby combustion engines or heating systems. Carbon monoxide is a toxic and life-threatening gas which will be monitored accurately by an electrochemical sensor.
- H₂O

Humidity Measurement

High humidity can cause corrosion and in severe cases lead to bursting air containers. In cold environment, it can freeze and block the air supply. The integrated dew point sensor is crucial to check the proper water removal of the dryers and filters.
- OIL

Oil Vapor Measurement

Atmospheric oil vapor contained in industrial air environment can get into the system through the compressor intake. Compressed into the breathing air, the oil contaminants can cause health issues. The state-of-the-art sensor technology detects the oil contaminants immediately.
- Pressure Measurement**

The pressure sensor provides additional pressure data about the compressed air system using state of the art sensor technology.
- Integrated Data Logger**

The integrated data logger records all channels in parallel for later analysis. The 5" touchscreen allows you to interact with the device on site. There is no need for a PC to manage the device.

Applications

Operators of breathing air systems are required to fill respiratory air in line with international standards such as EN 12021 or CFSR 1910.134(d). Potential hazards due to impurities in the breathing air can have consequences which endanger health or which are even life-threatening.

Regular checks with the Breathing Air Quality Analyzer S605 is an indispensable part for a safe operation.

Remote Connection

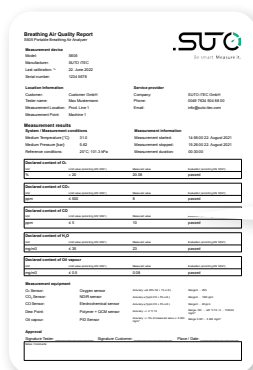
By connecting a 4G/LTE modem to the designated USB port, S605 can be monitored remotely through S4A software.



Create Breathing Air Quality Reports

The S605 enables users to create powerful PDF reports directly on site. Customer related data as well as service provider details can be entered on-screen, making it even easier to perform audits and to create meaningful reports.

PDF reports can be created from any recordings on the device and are copied on the fly to a connected USB drive for direct print-outs.



Measurement results		Measurement information	
System / Measurement conditions			
Medium Temperature [°C]:	31.0	Measurement started:	14:56:00 22. August 2021
Medium Pressure [bar]:	5.62	Measurement stopped:	15:26:00 22. August 2021
Reference conditions:	20°C; 101.3 kPa	Measurement duration:	00:30:00
Declared content of O₂			
Unit	Limit value (according EN 12021)	Measured value	Evaluation (according EN 12021)
%	≥ 20	20.08	passed
Declared content of CO₂			
Unit	Limit value (according EN 12021)	Measured value	Evaluation (according EN 12021)
ppm	≤ 500	8	passed
Declared content of CO			
Unit	Limit value (according EN 12021)	Measured value	Evaluation (according EN 12021)
ppm	≤ 15	10	passed
Declared content of H₂O			
Unit	Limit value (according EN 12021)	Measured value	Evaluation (according EN 12021)
mg/m ³	≤ 5	23	passed
Declared content of Oil vapour			
Unit	Limit value (according EN 12021)	Measured value	Evaluation (according EN 12021)
mg/m ³	≤ 0.5	0.08	passed

Relevant standards for breathing air

Relevant standards including BS EN 12021, DEF STAN 68-284, OSHA, CSA and BS 8478 require adherence to specific limits of constituents in breathing air. Here some examples of the required for industrial breathing air:

Contaminant	Europe	China	USA	Canada
Standard	EN 12021	GB/T 31975-2015	CFSR	CSA
O₂	20 - 22 %	19.5 - 23.5 %	19.5 - 23.5 %	20 – 22 %
CO₂	500 ppm	≤ 1000 mL/m ³	1,000 ppm	500 ml/m ³
CO	5 ppm	≤ 10 mL/m ³	10 ppm	5 ml/m ³
H₂O	PDP: < -11 °C 1) H ₂ O: <35 mg/m ³ 2) H ₂ O: <25 mg/m ³	ADP: ≤ -45.6 °C	---	---
VOC (Oil Vapor)	0.5 mg/m ³	≤ 5.0 mg/m ³ (Oil mist and particle)	5 mg/m ³	1 mg/m ³
Odor	no	no	no	no

Dimensions

Due to the small dimensions of the robust and light carry case, the S605 can be easily transported anywhere.



Why is breathing air quality testing important?



- ✓ It protects the health, safety and well-being of your employees and people who are on your premises.
- ✓ It ensures that your compressor, products and personnel are protected from airborne volatile organic compounds (VOCs) as well
- It ensures that your business complies with national and international regulatory standards for breathing air quality.
- ✓ It ensures that your compressed air and work environment have safe levels of oxygen, lubricants, oil, odor, taste, carbon dioxide, carbon monoxide and water.

Technical Data

Measurement

Oxygen O₂

Accuracy	±1% of reading ±0.05%
Measuring range	0 ... 25 %
Resolution	0.1 %
Sensor	Optical oxygen sensor
Sensor lifetime	> 5 years

Carbon Dioxide CO₂

Accuracy	±1% of reading ±25 ppm
Measuring range	0 ... 1000 ppm
Resolution	1 ppm
Sensor	NDIR sensor
Sensor lifetime	> 5 years

Carbon Monoxide CO

Accuracy	±5% of reading ±1 ppm
Measuring range	0 ... 20 ppm
Resolution	0.1 ppm
Sensor	Electrochemical sensor
Sensor lifetime	2 years

Humidity H₂O

Accuracy	± 1°C Td (0 ... 20°C Td) ± 2°C Td (-70 ... 0°C Td) ± 3°C Td (-100 ... -70°C Td)
Measuring range	-100 ... +20 °C Td / 0 ... 17458.6 mg/m ³
Resolution	0.1°C Td
Sensor	QCM + Polymer
Sensor lifetime	> 10 years

Oil Vapor

Accuracy	5 % of reading ± 0.003 mg/m ³
Measuring range	0.001 ... 5.000 mg/m ³ (Based on 1000 hPa(a), 20 °C, 0 % relative humidity)
Resolution	0.001 mg/m ³
Sensor	Photo ionization detector
UV lamp lifetime	6000 operating hours or 1 year (whichever occurs first)

Oil Mist and Particle (KA66P5600605 only)

Accuracy	15 % of reading ± 0.1 mg/m ³
Measuring range	0.0 ... 5.0 mg/m ³ (Based on 1000 hPa(a), 20 °C, 0 % relative humidity)
Resolution	0.1 mg/m ³
Sensor	Oil mist and particle sensor
Sensor lifetime	> 5 years

Pressure

Accuracy	0.5 % FS
Measuring range	0 ... 16 bar(g)
Resolution	0.01 bar
Sensor	Piezo resistive pressure sensor

Signal / Interface & Supply

Fieldbus

Protocol	Modbus/RTU (RS485) Modbus/TCP (Ethernet)
Update rate	1 / sec.

Power supply

Voltage supply	20 VDC, 45 W max. Battery
Current consumption	2.2 A

Interface

USB	USB Micro with OTG support
4G/LTE USB	USB Port for 4G/LTE Modem

General data

Configuration

Others	Device comes pre-configured Configuration can be done via on-screen touch
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Display

Integrated	5" color touch screen
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Data Logger

Storage	Up to 30 million measurement values
Report	Integrated report generator for PDF export

Material

Process connection	6 mm quick connector
Housing	PC, Aluminium alloy

Miscellaneous

Electrical connection	M12, USB-C, RJ45
Protection class	IP54
Water Inlet	6 mm connector
Dimensions	470 x 365 x 181 mm
Weight	11 kg

Approvals

EMC	FCC, CE
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Operating conditions

Measuring Medium	Compressed breathing air
Sample Flow Rate	6 LPM@4 MPa(g), depends on input pressure
Sample rate	1 sample/sec
Medium temperature	0 ... +45 °C
Medium humidity	< 40 % rH, no condensation
Inlet Pressure	0.4 ... 1.5 MPa(g), External pressure reducer allow up to 35 MPa process pressure
Ambient temperature	0 ... +50 °C
Ambient humidity	0 ... 90 % rH
Storage temperature	-10 ... + 50 °C
Transport temperature	-10 ... + 50 °C

Ordering

Please use the following tables to assist in placing your order with our sales staff.

S605 Portable Breathing Air Quality Analyzer

Article no..	Description
KA66P5600605	S605 Portable Breathing Air Quality Analyzer, touch screen interface, data logger, guided measurement, PDF report generator (with oil vapor sensor refer to Europe, USA, Canada standards) *
KA66P5601605	S605 Portable Breathing Air Quality Analyzer, touch screen interface, data logger, guided measurement, PDF report generator (with oil mist and particle sensor refer to China standards)*

* Includes:

- » Hand carry case with handle and shoulder belt
- » USB memory stick
- » Purge filter for pre-measurement (test kit)
- » Power adapter with USB type-C and cable, 60 W 20 V / 3.25 A
- » Connection hose 1.5 m, one end quick coupling, one end compressed air coupling
- » M12 connector
- » Filling bottle
- » Certificate of calibration
- » Operation and instruction manual

Accessories

Article no..	Description
KA66A6040001	Zero filter for Oil vapor/Oil mist/ and dew-point
KA66A6040004	Pressure reducer inlet pressure 0-30 MPa outlet pressure 0.6 Mpa Transport case included

S605 Service and Calibration

Article no.	Description
KA66R2000605	<ul style="list-style-type: none">• S605 General service and re-calibration• General inspection of the unit• Replacement of tubes and fittings• Cleaning of components• Calibration O2, CO2, CO, dew point sensor and oilvapor sensor• Assembly and test of unit• Calibration Certificate

Exchange sensors

KA66R2000620	CO exchange sensor unit S605/S606
KA66R2000621	CO2 exchange sensor unit S605/S606
KA66R2000622	O2 exchange sensor unit S605/S606
KA66R2000623	Oil mist and particle sensor exchange unit S605/S606
KA66R2000624	Oil vapor sensor exchange unit S605/S606
KA66R2000625	Dew Point sensor exchange unit S605/S606



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INSTRUMENTS

VALVES