S120

.SUT⊘
Be smart. **Measure it.**

Oil Vapor Monitor

| **Opt. 1** | Without Display |
| **Opt. 2** | With Display |

PID — **ACCURATE RESULTS** Latest PID sensor technology

TOUCH SCREEN For easy operation

EASY INSTALLATION Plug and Play Solution

COMPACT DESIGN Fits into your application

DATA LOGGER Integrated as option

DEW POINT SENSOR Option: -100 ... +20 °C Td

Benefits

- ✓ Plug & Play setup with quick connections. Can be used in portable and stationary applications.
- ✓ Oil vapor measurement in a range of 0.001 to 5.000 mg/m³
- ✓ Various output signals to connect the unit to building management systems
- ✓ PID sensor technology for fast response time and online monitoring
- ✓ Optional with integrated 5" touch screen display with data logger function
- ✓ Optional with integrated dew point measurement
- ✓ LED indications for status and alarms

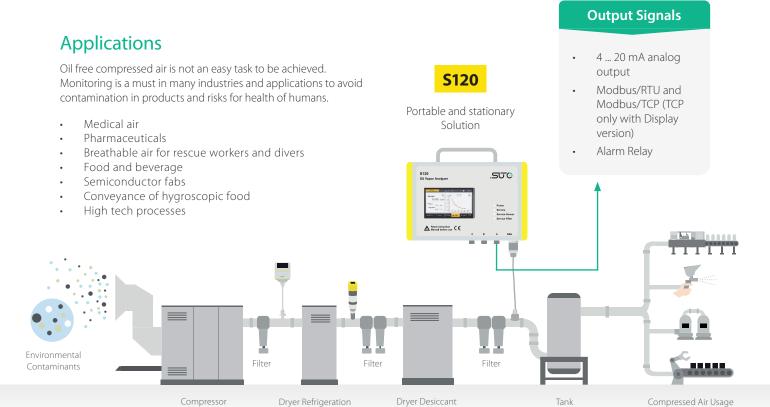## Simple Installation – Outstanding Performance

The S120 is designed to offer users an efficient way of measuring residual oil contents in a compressed air system.

The integrated automatic calibration compensates temperature and humidity drifts in the supplied air, resulting in most accurate, reliable and long term stable measurement results.

The simple plug & play installation, as well as its outstanding performance, makes the S120 the ideal choice when oil vapor needs to be measured and monitored.

Optional Integrated Dew Point Sensor

To ensure compressed air quality and purity, dew point measurement is an essential key parameter. Therefore, we offer an optional integrated Dew Point Sensor, -100 ... +20 °C Td, to measure both parameters in one compact device with an excellent price performance ratio.

Applications

Oil free compressed air is not an easy task to be achieved. Monitoring is a must in many industries and applications to avoid contamination in products and risks for health of humans.

- Medical air
- Pharmaceuticals
- Breathable air for rescue workers and divers
- Food and beverage
- Semiconductor fabs
- Conveyance of hygroscopic food
- High tech processes

Output Signals

- 4 ... 20 mA analog output
- Modbus/RTU and Modbus/TCP (TCP only with Display version)
- Alarm Relay

S120

Portable and stationary Solution

| Environmental Contaminants | Compressor | Filter Dryer Refrigeration | Filter Dryer Desiccant | Filter | Tank | Compressed Air Usage |

Use Case in the Cosmetic Production Industry

A cosmetic skincare manufacturer faced challenges meeting new air quality standards due to oil vapor contamination from their aging compressor system.

Using the SUTO S120 Oil Vapor Monitor, an air quality audit revealed the issue, leading to filtration upgrades. Further monitoring identified persistent contamination in the piping, prompting the installation of additional point-of-use filters.

These measures successfully reduced oil vapor levels, ensuring compliance with regulations and maintaining product quality
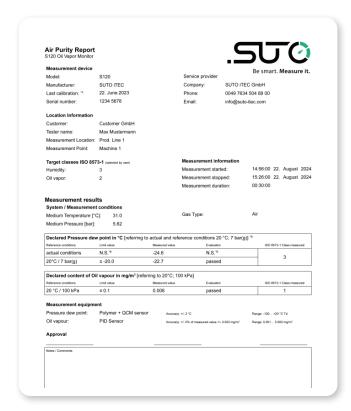

Compressed Air Purity Reports

The S120 Oil Vapor Monitor includes a Guided Measurement feature that simplifies the process of monitoring and reporting oil vapor levels in compressed air systems.

This intuitive feature guides users step-by-step through the measurement process, allowing them to generate and export detailed compressed air purity reports, available as a PDF file, without the need for external software.

The reports comply with ISO 8573-1 reporting guidelines, the international standard for air quality classification, ensuring that your compressed air system meets the required purity levels for your applications.

With the S120, maintaining air quality standards is efficient, accurate and straightforward.

Oil Vapor Measurement

The oil vapor monitoring system is equipped with the latest photoionization detector (PID) with automatic zero point calibration and offers a measuring range in accordance with ISO 8573-1 Class 1 to Class 4 with high precision and an accuracy of 5% of the reading ± 0.003 mg/m³.

Dew Point Measurement (Optional)

Advanced multiple sensor technology enables large measurement ranges, ensuring long-term stability with well-proven methods, and delivers high precision with an accuracy of ±2°C Td.

Pressure Measurement

The pressure measurement system utilizes state-of-the-art sensor technology to provide additional quality data about the compressed air system.

Data Logger and Guided Measurement

The integrated data logger records all channels in parallel for later analysis, enabling guided measurements and comprehensive data assessment.

Air Purity Report
S120 Oil Vapor Monitor

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Measurement device

Model:	S120
Manufacturer:	SUTO iTEC
Last calibration: [A]	22. June.2023
Serial number:	1234 5678

Service provider

Company:	SUTO iTEC GmbH
Phone:	0049 7634 504 88 00
Email:	info@suto-itec.com

Location Information

Customer:	Customer GmbH
Tester name:	Max Mustermann
Measurement Location:	Prod. Line 1
Measurement Point:	Machine 1

Target classes ISO 8573-1 (selected by user)

Humidity:	3
Oil vapor:	2

Measurement information

Measurement started:	14:56:00 22. August 2024
Measurement stopped:	15:26:00 22. August 2024
Measurement duration:	00:30:00

Measurement results
System / Measurement conditions

Medium Temperature [°C]:	31.0
Medium Pressure [bar]:	5.62

Gas Type: Air

Declared Pressure dew point in °C [referring to actual and reference conditions 20 °C; 7 bar(g)] [B]

Reference conditions	Limit value	Measured value	Evaluation	ISO 8573-1 Class measured
actual conditions	N.S. [B]	-24.6	N.S. [B]	3
20°C / 7 bar(g)	≤ -20.0	-22.7	passed	

Declared content of Oil vapour in mg/m³ [referring to 20°C; 100 kPa]

Reference conditions	Limit value	Measured value	Evaluation	ISO 8573-1 Class measured
20 °C / 100 kPa	≤ 0.1	0.008	passed	1

Measurement equipment

Pressure dew point:	Polymer + QCM sensor	Accuracy: +/- 2 °C	Range: -100... +20 °C Td
Oil vapour:	PID Sensor	Accuracy: +/- 5% of measured value +/- 0.003 mg/m³	Range: 0.001... 5.000 mg/m³

Approval

Notes / Comments:

Technical Data

Measurement

Oil Vapor

Measuring range	0.001 ... 5.000 mg/m³ (Based on 1000 hPa(a), 20 °C, 0 % relative humidity)
Accuracy	5 % of reading ± 0.003 mg/m³
Resolution	0.001 mg/m³
Selectable units	mg/m³ / ppm
Sensor principle	Photo ionization detector

Pressure

Measuring range	0 ... 16 bar(g)
Accuracy	0.5 % FS
Resolution	0.01 bar(g) / 0.001 MPa / 0.1 psi
Selectable units	bar(g) (default), MPa and psi (on request)
Sensor principle	Piezo resistive pressure sensor

Dew Point (optional)

Measuring range	-100 ... +20 °C Td
Accuracy	±1 °C Td (0 ... 20 °C Td)
	±2 °C Td (-70 ... 0 °C Td)
	±3 °C Td (-100 ... -70 °C Td)
Resolution	0.1 °C Td
Selectable units	°C Td / °F Td
Sensor principle	QCM + Polymer

Temperature

Measuring range	0 ... 50 °C
Accuracy	0.5 °C
Resolution	0.1 °C
Selectable units	°C / °F
Sensor principle	NTC

Signal / Interface & Supply

Outputs / Interface

Analog output	4 ... 20 mA, isolated
Alarm output	Relay, NO, 40 VDC,0.2A
Digital interface	Modbus/RTU (RS485)
	Modbus/TCP (Ethernet) & USB (only available for display version)
Display (optional)	5" color touch screen with a data logger of 30 million measurement values

Supply

Power supply	24 VDC ± 5 %, 10 W

- 🟡 Power
- 🔴 Alarm
- 🟢 Service Sensor
- 🟢 Service Filter

LEDs indicate if pre-set alarms are reached, or if filters and sensors need to be serviced. The service indications start blinking 4 weeks before expiring and turn on permanently when a service is immediately required.

General Data

Measuring medium	Compressed air, N₂, CO₂ (for other gases please contact us)
Sample flow rate	< 2 l/min, measuring gas is released to ambient
Sample rate	1/sec
Gas / Operating temperature	0 ... + 50 °C
Transport temperature	-10 ... + 50 °C
Operating pressure	3 ... 15 bar(g)
	0.5 ... 3 bar(g) (low pressure version only)
	0.60 ... 1.07 bar(a) (ambient version only)
Gas humidity	< 40 % rel. humidity, no condensation
	< 95 % rel. humidity, no condensation (only for ambient version)
Gas connection	6 mm quick connect
UV lamp lifetime	6,000 working hours or 1 year, whichever comes first
Electrical connection	M12, USB, RJ45
Settings	Various sensor settings can be performed through SUTO display units or through the related service software
Housing material	PC, Al alloy
Protection class	IP65
Dimensions	271 x 231 x 91 mm
Weight	2.4 kg
Approval	CE

Dimesions

Ordering

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

S120 Oil Vapor Monitor

Order No.	Description
S604 1201	S120 Oil Vapor Monitor, 0.001… 5.000 mg/m3, Modbus/RTU, 4...20 mA, Alarm Relay, Supply 24 VDC, incl.: Power Supply, 3 x M12 Plug, 1.5 m Teflon Hose with Quick Connector
S604 1202	S120 Oil Vapor Monitor for S551, 0.001… 5.000 mg/m3, Modbus/RTU, 4...20 mA, Alarm Relay, Supply 24 VDC, incl.: Power Supply, 3 x M12 Plug, 1.5 m Teflon Hose with Quick Connector, Transport Case, S551 5m connection cable
S604 1203	S120 Oil Vapor Monitor, 0.001… 5.000 mg/m3, with integrated Touch-Screen Display and Data Logger, Modbus/RTU, Modbus/TCP, 4...20 mA, Alarm Relay, Supply 24 VDC, incl.: Power Supply, 3 x M12 Plug, 1.5 m Teflon Hose with Quick Connector
S604 1204	S120 Oil Vapor Monitor, 0.001… 5.000 mg/m3, Low Pressure Version 0.5… 3.0 bar(g), with integrated Touch-Screen Display and Data Logger, Modbus/RTU, Modbus/TCP, 4...20 mA, Alarm Relay, Supply 24 VDC, incl.: Power Supply, 3 x M12 Plug, 1.5 m Teflon Hose with Quick Connector
P604 1205	S120 Portable Oil Vapor Monitor, 0.001… 5.000 mg/m3, with integrated Touch-Screen Display and Data Logger, Modbus/RTU, Modbus/TCP, 4...20 mA, Alarm Relay, Supply 24 VDC, incl.: Power Supply, 3 x M12 Plug, 1.5 m Teflon Hose with Quick Connector, Transport Case
P604 1215	S120 Ambient Portable Oil Vapor Monitor, 0.001… 5.000 mg/m3, internal Vacuum Pump for Ambient Air, with integrated Touch-Screen Display and Data Logger, Modbus/RTU, Modbus/TCP, 4...20 mA, Alarm Relay, Supply 24 VDC, incl.: Power Supply, 3 x M12 Plug, 1.5 m Teflon Hose with Quick Connector, Transport Case
A1250	S120 Option with integrated Dew Point Sensor, -100… +20 °C Td (only for S604 1203, S604 1204 and P604 1205)

S120 Calibration

Order No.	Description
R200 0120	S120 General service and re-calibration (for all models without Dew Point Sensor option A1250): - General inspection of the unit - Replacement of tubes and fittings - Cleaning of lamp and sensor - Assembly and test of unit - Calibration of oil sensor - Calibration Certificate
R200 0121	S120 General service and re-calibration with dew point sensor option (for S604 1203 and P604 1205 with Dew Point Sensor Option A1250): - General inspection of the unit - Replacement of tubes and fittings - Cleaning of lamp and sensor - Assembly and test of unit - Calibration of oil sensor / Accessories - Calibration Certificate

S120 Accessories

Order No.	Description
A554 1203	Oil vapor zero filter for checking purpose, 1.5 MPa max, quick connectors at in- and outlet, creates 0.001 mg/m3 to check the S120 performance
A554 1207	Replacement kit, zero filter material for A554 1203
A554 0120	Transport Casing S120/S130, custom fit for the device and accessories

www.suto-itec.com   **sales@suto-itec.com**