Measurement technology for the security and quality of compressed air

The key to the successful optimisation of compressed-air systems is data. The **METPOINT®** range of measurement equipment with sensor technology and monitoring provides the data base for the evaluation and assurance of the compressed-air quality and for the identification of hidden cost drivers. Our measurement equipment can also be employed for the extension of plants and for the early elimination of malfunctions.

Sensor technology

What about the residual oil content, residual humidity, volume flow and pressure in your production? Probably you know that these are the decisive parameters for the quality of compressed air used in your processes, and the efficiency of your production. But do you know what they actually ARE? With our sensor technology, you can capture all these data parameters – constantly, faultlessly and with exemplary precision.

METPOINT BDL : the optimum solution, keeping all the critical processes in check

Up to 12 analogue and/or digital sensors
Up to 32 limit values and four alarm relays for trouble indications are freely configurable
7" colour display

In combination with the consumption rate analysis, daily, weekly, or monthly evaluations can be calculated with the costs and counter reading.

METPOINT BDL compact : the cost-effective solution

Up to four analogue and/or digital sensors
Up to four limit values and two alarm relays for trouble indications are freely configurable
3,5" colour display

In combination with the optional web server, the current measured values can be retrieved, independent of the location

METPOINT BDL portable: universal handheld measuring device

The **METPOINT® BDL portable** enables mobile data logging and allows users to evaluate the quality of compressed air right on site. Universal sensor inputs ensure easy and convenient connectivity with all conventional industrial transducers. In addition, the device is intuitive to operate using an easy-to-read 3.5" touchscreen.

It is possible to store up to 100 million measured values, along with the date and name of location, and to display that information in colour graphs. Users are able to conveniently transfer the measurements to a PC using a USB stick and continue analysing and interpreting the data with evaluation software.

Special software for the data analysis and administration

METPOINT Reader SW201

for the comprehensive graphic and tabular data evaluation and analysis at a location-bound PC workstation. The readout of the measured data from the data logger is effectuated via USB or Ethernet.

METPOINT Connect

for the location-independent evaluation of any number of METPOINT® BDL data loggers. For this purpose, the measured data are stored on a server in pre-defined cycles, from where they are provided. In the event of limit value exceedances, an alarm is automatically sent via SMS or e-mail upon request. The evaluation of the measured data of all the METPOINT® data loggers that are integrated into the system can be implemented at every workplace worldwide.

METPOINT DPM : Dew point measuring devices

Humidity in compressed air is a well-known problem and can lead to severe consequential damage. In particular in demanding applications, malfunctions in production plants can have serious consequences. Costly standstills and increased expenses for deficient products and quality assurance quickly add up.

With the temperature, the relative humidity and the dew point , mobile and stationary dew point measuring devices made by BEKO TECHNOLOGIES precisely measure the critical parameters in compressed air and other gases.

Stationary dew point measurement (sensor SD21/23 / display BDL compact)

With the stationary dew point measuring device, the data of the continuous measurements are indicated on the display and simultaneously automatically stored in the data logger. An alarm relay is triggered when the adjusted limit value is exceeded. The user will therefore directly receive a message if the process parameters are critical.

METPOINT BDL portable: universal handheld measuring device

The **METPOINT® BDL portable** is a handheld measuring device designed for universal use and features an integrated data logger for collecting information on key parameters, such as con-sumption and flow rates, vacuum and pressure levels, as well as residual moisture and dew point.

METPOINT® FLM: sensor technology for volume flow measurement

To evaluate whether your current production can be further optimised, you need accurate, up-to-date figures regarding compressed air volume flow rates and consumption volumes. These parameters can be monitored by the **METPOINT FLM**sensor, this device provides you with the data you need for intelligent energy management. Identify potential savings, overloads and weak points in your system to improve its efficiency. By measuring the actual flow to the various production units, you are in a position to make decisions based on facts. At the same time, the **METPOINT FLM** lets you know whether there are any leaks in your system. The **METPOINT FLM** thus provides you with all the information you need to dimension and modify your system and its components for improved efficiency.

This leak detector detects every leak. Precisely and quickly.

Minor cause – major effect. Small leaks can already make up a large part of the costs for compressed air. Leakage rates of 30 % are not a rarity. In times of rising energy prices, huge amounts of money are quickly „blown into the air“ in this manner.

A remedy to this is the small and easily operable **METPOINT® LKD**Leak Detector. With this device, the leaks in the system can be detected within a short time. Therefore, short-notice pinpoint maintenance is possible.

METPOINT LKD detects every compressed air leak

Where compressed air escapes, friction of the gas molecules at the wall of the pipework occurs. This friction produces a high-frequency inaudible ultrasound. The **METPOINT® LKD** detects the ultrasound, transforms it into an audible sound and indicates it optically. The **METPOINT® LKD** operates with extreme reliability. As only those frequencies are detected which occur in the event of leakage, precise location of the leaks is ensured under all types of industrial noise conditions.

The **METPOINT® LKD** detects every leak even at long distances, also at places which are not easily accessible and without direct visual contact.

Safety for your breathing air

The **METPOINT® MMA** serves to continuously and reliably monitor the quality of breathing air. This compact measuring device was especially developed for use in hospitals.

With the evidence regarding the adherence to the legally stipulated limit values of components and contaminants being provided, pharmacists in clinics comply with the legally binding obligations of the European Pharmacopoeia. The entire cycle for medical compressed air is continuously measured.

Monitoring and recording limit values of the Pharmacopoeia

All the relevant parameters are directly and precisely indicated, and the results lastingly logged. If the limit values of the Pharmacopoeia are exceeded, the system will immediately release an alarm which will be retrieved in a targeted manner or directly processed in the quality assurance system.

The **METPOINT® MMA** simultaneously monitors seven defined parameters of the central compressed-air station.

- Dioxygen O2 in %
- Sulfur Dioxid SO2 in ppm
- Carbon Dioxid CO2 in ppm
- Carbon Monoxid in ppm
- Nitrogen Oxides NOx in ppm
- Water Vapor H2O in ppm

Continuous oil vapour measuring for your process safety

The METPOINT® OCV has been developed for measuring hydrocarbon vapours and gases in compressed air system applications. The detection levels are as low as one thousandth mg/m³ of residual oil vapour content and are executed continuously in ongoing operation. Shortened measuring intervals enable the rapid and reliable display of even the smallest deviations. This on-line monitoring process provides the certainty about the quality of your compressed air as an important element of your process safety at all times and at all quality-critical system points. The measurement data can be utilised for documenting the compressed air quality and for identifying contamination sources. The oil vapour measuring can be implemented with two various products: METPOINT® OCV and METPOINT®OCV compact. The similarities and differences will be explained in detail in this brochure.

METPOINT® OCV and METPOINT® OCV compact enable us to provide two products with which you can permanently measure the quality of your compressed air with regard to the oil vapour content.

Advantages of the METPOINT OCV | OCV compact

The details will be clarified more precisely on the following pages. Installation example with METPOINT

- **Safe**
- Reproducible accuracy of the measurement values by utilising reference gas generation (catalytic converter principle)
- Automatic monitoring for the reference gas and sensor electronics
- Issuing and transferring of alarm signal messages

- **Reliable**
- Pressure range from 3 to 16 bar
- Online monitoring for the oil vapour concentrationData transfer to display as standard feature and control centre with customary communication methods

- **User-friendly**
- Visualisation of all measurement values
- Flexible installation

There are however certain differences, which can qualify them more efficiently for the respective application purpose.

METPOINT OCV

- External test certificate: TÜV NORD, BfArM
- Intuitive user interface and setting options

METPOINT OCV compact

- Robust industrial housing
- Update of the measured value display every 4 sec.

	METPOINT OCV	METPOINT OCV compact
Measuring and display unit	Separated, connected with data cable (maximum 5m)	One unit with a robust industrial design
Protection class	IP20 sensor unit IP54 display unit	IP54
Updating the measuring value display	Every 2 minutes	Every 4 seconds
Gas flow through	2 - 3 Standard litre / minute,	Approx. 1.20 Standard litre / minute

rate	relating to 1.0 bar absolute and +20°C bei 1 bar abs / 20°C	relative to 1.0 bar absolute and +20°C
Interfaces	4...20 mA, Ethernet	4...20 mA, RS485/Modbus (only for measuring value)
Display and operating concept	Menu-guided on colour touch screen	7-Segment display with 5 buttons forsetting configuration and alarm
Optical display for the operating status	Coloured representation on touch screen display	3 LEDs (each red/green) for purifier,PID and oil class
Measuring cell protection	Utilising error indicator on display	The measuring cell will be protected against too high oil content via a valve switching process

Recognised procedure and external test certificate

The eligibility of the utilised measuring procedure in the METPOINT® OCV for the continuous recording of hydrocarbon vapour and gases in compressed air will be executed via comparison measurements in the PID procedure with reference procedures according to:

›› ISO 8573-5

›› Pharmacopeia (Ph. Eur. 2.1.6)

While the reference procedures according to ISO 8573-5 and the pharmacopoeia are based on a discontinued sampling method, the METPOINT® OCV measuring procedure provides the advantage of on-line monitoring. This therefore creates the prerequisite to immediately react to an increase in the residual oil content in the compressed air and possible breaching of the limiting values. The METPOINT® OCV is the first TÜV certified on-line system for recording the oil vapour content in compressed air. It has been certified by TÜV NORD according to the requirements ISO 8573-1.

Simple and safe operation

Both METPOINT® OCV systems provide output information about the current measurement value (oil vapour in mg/m³), the ISO 8573 oil class as well as the status of the measuring system and its components. In addition, the status of the measuring cell and the purifier will be displayed visually. You therefore have an overview about the measurement values, oil class, system status at all times and know immediately that your compressed air is correct.

Pressure Sensor

The **METPOINT® PRM** pressure transducer detects the relative pressure (gauge pressure) in gaseous and liquid media and transforms this measured value into a linear output signal. Pressure transducers transform the physical pressure into a pressure-proportional electrical signal.

As regards the **METPOINT® PRM**, sensors of the thin-film technology are employed. The body and membrane of a metal thin-film sensor consist of a 1.4548 stainless-steel material. On the membrane side that faces away from the medium, insulation layers, strain gauges, compensating resistors, and conductors are applied with a combination of chemical and physical methods, and are

photolithographically structured through etching. The layers of the resistors and electrical conductors applied on the sensor are considerably thinner than a micrometer and are, therefore, called thin-film resistors.

Due to the materials used, the metal thin-film sensor boasts very good resistance to many media, and it is insensitive to shocks and vibration impacts.

Universally applicable

Pressure sensors of the SP21 and SP22 series offer precise system monitoring. The measured values provide the basis for the maintenance and optimisation of production plants. In addition, the exact assignment of pressures opens up possibilities for factual, economic decisions. Versatile interfaces allow for smooth integration into existing process control systems.

Plug-on displays METPOINT® UD01/UD02

Many production and treatment processes can only be run efficiently if real-time data is available on site. Without this information, it is impossible to closely monitor the quality of applications and processes and take swift action, if the need arises.

The **METPOINT ® UD01** and **UD02** plug-on displays make measuring data available directly at the transducer - where you need it. You are then in a position to evaluate the quality of your processes in real time right at the plant, enabling you to intervene quickly should it be necessary. Simply mount the device on your transducer.

Apart from displaying the current process parameters, the plug-on displays also allow for the transfer of the measurements to a data logger such as the **METPOINT ® BDL** or to a master control system.