Measurement technology

METPOINT®

Measurement technology for maximum system transparency

METPOINT® makes visible the quality of your compressed air

BEKO

Content

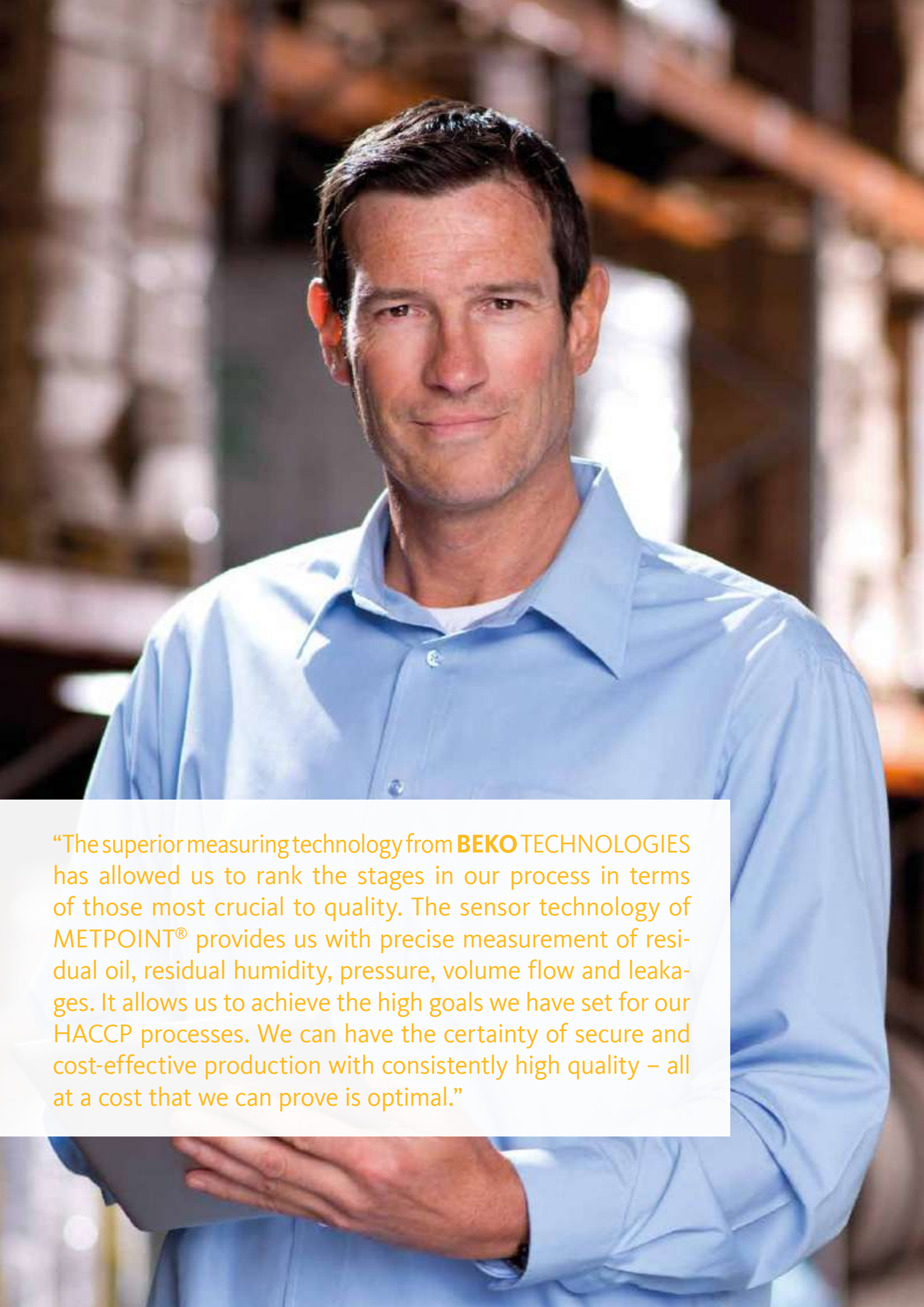
"We installed METPOINT® measurement technology from **BEKO** TECHNOLOGIES to provide constant monitoring of all the parameters affecting compressed air quality. The data provided by these hi-tech devices allows us to optimise our quality assurance and energy management goals. The reliability of these inputs gives us supreme confidence in our systems and in the quality of our products."

Creating efficient processes – securely, transparently
Consistently maintained compressed air quality means constant product quality

Companies face major production challenges. When product and process safety depend on the quality of compressed air, processing must be guaranteed to meet the highest standards at all times. To gain consumers' trust companies must unconditionally embrace the strict requirements of systematic quality assurance. At the same time, the cost-effectiveness of processes is crucial to maintaining a company's competitive edge. Intelligent energy management has therefore become a very high corporate priority. In compressed air production, energy costs can account for more than three-quarters of the total operating costs, therefore the cost-reduction potential in this area is often substantial. **BEKO** TECHNOLOGIES' measurement technology helps you to maximise these potential savings.

"Absolute knowledge – not estimates" is the first base requirement for making the most effective quality and energy management decisions. With the development of its advanced measurement technology, **BEKO** TECHNOLOGIES is proud to provide you with the tools to generate this degree of certainty. For example, you can deploy appropriate devices for energy management which are fully in keeping with the ISO 50001 standard; or you can install other tools to provide you with complete proof of compliance to the demanding HACCP or GMP requirements.

Sensor technology and monitoring make visible the actual status of all the compressed air parameters in your process. Thus your entire process chain can be monitored, and by using data logging equipment, all this information is recorded and made permanently available for detailed analysis. The benefits are enormous since your cost drivers gain immediate visibility. When installed on multi-site operations you can compare different installations and swiftly identify potential areas for reducing production costs and enhancing your company's competitiveness. The innovative and environmentally sound technologies from **BEKO** TECHNOLOGIES take your compressed air treatment to new levels of safety, efficiency and cost-effectiveness.



"The superior measuring technology from **BEKO** TECHNOLOGIES has allowed us to rank the stages in our process in terms of those most crucial to quality. The sensor technology of METPOINT® provides us with precise measurement of residual oil, residual humidity, pressure, volume flow and leakages. It allows us to achieve the high goals we have set for our HACCP processes. We can have the certainty of secure and cost-effective production with consistently high quality – all at a cost that we can prove is optimal."

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 sensor technology from **BEKO** TECHNOLOGIES, you can capture all these data parameters – constantly, faultlessly and with exemplary precision.

Our SENSOR TECHNOLOGY product portfolio

METPOINT® DPM

The METPOINT® DPM dew-point monitor precisely measures dew-point, temperature and relative humidity – *sine qua non* the most critical parameters in compressed air and technical gases.

METPOINT® FLM

The METPOINT® FLM detects the flow rate; provides information on potential overloads, malfunctions and leakages; forms the basis for efficiency-enhancing consumption analyses.

METPOINT® PRM

The METPOINT® PRM monitors the system operating pressure ensuring the safety of your compressed air supply.

METPOINT® LKD

The METPOINT® LKD leak detector detects even the smallest leakages, thus allowing you to remove unnecessary energy and repair costs.

METPOINT® FLM

Are your production processes optimised for the highest energy efficiency? The only way you can answer this question is if you have accurate data on the dynamics of the flow rate of your compressed air installation. The METPOINT® FLM provides detailed data analyses and helps you identify savings potential and provides the data for implementing sustained energy use enhancement strategies. You can identify over-loadings and malfunctions, and re-dimension your production plants to achieve maximum energy efficiency. The allocation of consumption shares to production units provides a concrete foundation for fact-based decision making. Also, METPOINT® FLM can show how much compressed air is being lost to leakages in the system. Measurement using the METPOINT® FLM provides you with the data to align components for optimal system efficiency.

Benefits

Basis for consumption analysis to reduce costs

Basis for the efficient design of facilities

Simple detection of leakages

The FS211 is the compact version of the METPOINT® FLM.

How it works

So, flow rate is an important value for determining the design of compressors and reserve capacities in production. As a result, measurement using the METPOINT® FLM is crucial to achieving potential efficiency increases because it records and displays minimum and maximum consumption values (the fluctuation range). Moreover, it continues to monitor consumption during production stand-stills and so can reliably detect and indicate overall leakage rates.

Why not take your quality management to the next level? By allocating consumption shares to individual manufacturing stages, the METPOINT® FLM provides all the basic data for making important business decisions. The FS211 device consists of a sensor unit, and a display and measurement section. The FS109 provides an optional display unit, data logger and measurement section. Both devices are supplied as a ready-to-install unit.

Technical Data

METPOINT® FLM Flowsensor FS109

Volume flow measurement

Technical Data	
Measurement principle	Calorimetric measurement
Measured quantities	Standard settings: m³/h , m³ and m/s Other units can be programmed at customer's request. Volume flow: m³/min, l/min, l/s, cfm Mass flow: kg/s, kg/min, kg/h Consumption: l, cf, kg
Accuracy (with measuring section)	± 3 % of measured value
Accuracy (without measuring section)	± 4 % of measured value
Power supply	24 VDC
Analog output	4 to 20 mA (load < 500 ohms) Accuracy 0.06 mA
Pulse output	1 pulse per m³, active signal max. current I = 10 mA
Operating pressure	up to 50 bar
Measurement medium	Air, gases
Sensor	Pt45, Pt1000
Internal thread	G½" (ISO 228/1)
Material of sensor tube and threaded fittings	Stainless steel 1.4301
Housing material	Plastic PC + ABS
Weight	630 g
Protection rating	IP 65
Operation temperature	-30 ... 140 °C sensor tube -30 ... 80 °C housing
Measurement medium humidity	Max. 90 % RH (no water droplets)

METPOINT® FLM compact FS211

Volume flow measurement

Technical Data	
Measurement principle	Calorimetric measurement
Measured quantities	Flow, consumption and speed Reference setting ex works: DIN 1945/ ISO 1217 (20 °C / 1000 mbar)
Units	Standard settings: m³/h, m³ and m/s Other units can be set using the display menu.
Accuracy	± 1.5 % of measured valve ± 0.05 % of final value
Power supply	12 up to 30 VDC Supply via the optional wall plug transformer or DD 109
Power consumption	max. 80 mA at 24 VDC
Analog output	4 ... 20 mA (apparent ohmic resistance <500 Ohm), Accuracy: 0.06 mA
Pulse output	1 pulse per m³ or per litre, pulse output potential-free, switching power max. 30 VDC, 20 mA
Operating pressure	up to 16 bar
Measurement medium	Air, gases
Sensor	Pt45, Pt1000
Material of measuring section	Version with connection thread: stainless steel 1.4301 or 1.4404
Material of sensor tube	Stainless steel 1.4301
Housing material	Plastic PC + ABS
Protection rating	IP 65
Operation temperature	0 ... 50 °C
Measurement medium humidity	Max. 90 % RH (no water droplets)

METPOINT® LKD

It is self-evident that leakages drive up energy expenditure in production, but how leak-free – or leaky – is your system? Leaks often remain undetected because they are not usually audible, especially in a noisy production site. Unnoticed and unresolved, leaks will become significant cost drivers. Eliminating leakages provides the highest first round savings potential in re-evaluating a compressed air supply. Thanks to state-of-the-art ultrasound technology, the leakage detection device METPOINT® LKD seeks out even the smallest leaks. So, minimum expenditure: maximum returns. With the METPOINT® LKD you contribute to environmentally sound manufacturing processes, raise the energy efficiency of your production to a new level – and increase your company's overall cost-effectiveness.

Benefits

- Latest battery technology with a long duration
- Clear digital display
- Mobile leakage measurement
- Sensitive ultrasonic detection
- Simple cost reduction with little effort
- Can also be used during production

How it works

Leakages are openings in a compressed air system through which air can escape. This leads to a loss of pressure, which requires more energy expenditure in terms of more compressed air generation to maintain the required pressure. Most leakages occur in the last metres of production pipes, most often in connecting service parts with quick-fit couplings. When compressed air escapes, friction occurs between gas molecules and the pipe wall. This friction generates high-frequency ultrasound, inaudible to humans. The METPOINT® LKD detects the ultrasound, converts it down into the audible sound range and displays it optically. Since METPOINT LKD® detects only the frequencies that occur in the case of a leakage, the precise localisation of the leakage is guaranteed, even amid high background process noise.

Technical Data

METPOINT® LKD

Leak detection

Technical Data	
Measurement range	40 kHz +/- 1 kHz
Bandwidth	2,5 kHz
Visual display	OLED display Signal leakage (analog needle deflection) Sensitivity: Bargraph and percentage indication Sound Level: Bargraph and percentage indication Charge state: Multilevel
Signal level display	digital needle deflection and percentage indication
Sensitivity	0 ... 100 % adjustable
Power supply	3.7 V Li-ion rechargeable battery with 1100 mAh battery
Charging time	2,5 h
Battery lifespan	> 40 h
Weight	ca. 250 g
Housing	Aluminium
Dimensions (mm)	120 x 70 x 23
Keyboard	Membrane IP51 (resistant to oils, etc.)
Interface	USB (updatable)
Connector plug	Mini USB Type B

Technical Data Power Supply Unit	
Input voltage	90 ... 264 VAC
Input frequency	47 ... 63 Hz
Power	5 watts
Output voltage	5 VDC
Operating temperature	0 °C ... +40 °C
Storage temperature	-40 °C ... +85 °C
Dimensions (mm)	71,7 x 45 x 29,8
Weight	60 g
Connecting plug	Mini USB Type B

METPOINT® DPM

You need to dry compressed air in your production? This is particularly important in sensitive areas requiring the highest level of hygiene and in which compressed air comes in contact directly or indirectly with products. The METPOINT® DPM measures the dew point of your compressed air through relative humidity and temperature. But that's not all. It provides information on how well components are functioning, and the measurement provides the basis for optimising the dimensions of your plant. This makes the METPOINT® DPM not just a guarantor of safety in your process chain, but also an instrument for increasing the efficiency of your production.

Benefits

- **Allows for mobile and stationary monitoring**
- **High measurement accuracy**
- **Continuous on-line measurement**
- **Plug-and-Play**
- **Complete security**

How it works

The stationary pressure/dew-point monitor precisely measures the temperature, relative humidity and dew-point (down to an impressive -60 °Ct_d). These are the critical performance parameters for compressed air and other gases. Measurement is performed continuously and the data can be optionally displayed on the external display and saved in the data logger. If a pre-set threshold value is exceeded, an alarm relay can be set to trigger automatically. This provides the user with direct feedback on critical process parameters and allows an immediate response.

Technical Data

METPOINT® DPM SD11 SD21 / SD23

Dew point measurement

Technical Data	
Measurement principle	Capacitive polymer sensor
Measured quantity	°C t_d dew point / frost point
Measurement range	-60 ... +30 °C t_d
Max. measurement error	± 4 K for -60 ... -50 °C t_d ± 3 K for -50 ... -30 °C t_d ± 2 K for -30 ... -10 °C t_d ± 1 K for -10 ... +30 °C t_d
Response time t95	< 10 sec. from dry to wet < 40 sec. from wet to dry
Supply voltage	14 ... 30 VDC
EMV	EN 61326
Output signal	SD11: 4 ... 20 mA analog, 2-conductor SD21: 4 ... 20 mA analog, 2-conductor SD23: RS485, digital output, 4-conductor SD23: 4 ... 20 mA, analog , 4-conductor
Max. permissible operating pressure	50 bar (psig)

Process medium	Compressed air
Temperature compensated range	-25 ... +60 °C
Reference conditions	EN 61298-1
Process connection	G 1/2 male thread (ISO 228-1)
Sensor protection	Stainless steel sintered filter 40 µm
Measurement gas flow when using the measurement chamber	1 ... 3 SLM
Weight	175 g
Protection class according to EN 60529	IP 65
Process medium temperature	-30 ... +70 °C
Ambient temperature during operation	-25 ... +60 °C
Storage and transport temperature	-40 ... +85 °C
Ambient humidity	0 ... 95 %, non-condensed

METPOINT® PRM

You require precise pressure monitoring so that you can reliably measure pressure differences and/or system pressures? The METPOINT® PRM pressure sensor puts you on the safe side. Its superior measuring accuracy and reliability ensures the protection of your plants and production. What's more, the METPOINT® PRM allows you to optimise the monitoring of your compressors and increase the energy efficiency of your processes.

Benefits

- **Precision thin-film technology**
- **High burst pressure**
- **Robust design**
- **Versatile, can be integrated in a number of different systems**
- **Complete safety in compressed air supply**

How it works

The METPOINT® PRM by **BEKO** TECHNOLOGIES detects the relative pressure (excess pressure) in gaseous and liquid media and converts this measurement into a linear output signal. The use of stainless steel thin-film sensors forms the necessary basis for precise measuring results. This guarantees the best possible monitoring of your operating pressure.

Technical data

METPOINT® PRM SP 11 SP 21 / SP 22 (SP 61 / SP 62)

Pressure control

Technical data	
Measurement principle	Stainless steel thin film technology
Measured quantity	Excess pressure (relative pressure)
Output signal	SP11: 4 ... 20 mA, analog, 2-conductor SP21 / SP61 : 4 ... 20 mA, analog, 2-conductor SP22 / SP62 : 0 ... 10 V, analog, 4- or 3-conductor
Measurement range	0 ... 25 bar or 0 ... 60 bar
Excess pressure threshold	SP11: 50ba SP21 / SP22: 50 bar SP61 / SP62: 120 bar
Burst pressure	SP11: 125 bar SP21 / SP22: 125 bar SP61 / SP62: 300 bar
Process medium	Gases / liquids
Temperature compensated range	0 ... 60 °C
Reference conditions	EN 61298-1
Process connection (connecting port according to EN 837-1)	G 1/4 B
Weight	105 g
Operational life	10 million load cycles
Protection class acc. to EN 60529	IP 67

Non-linearity acc. to limit point	≤ ± 0,15 % MBE
Max. measurement error	≤ ± 0,5 % MBE
Process medium temperature	-40 ... +85 °C
Ambient temperature during operation	-25 ... +85 °C
Storage and transport temperature	-40 ... +85 °C
Ambient humidity	20 ... 95 %, non-condensed
Supply voltage	12 ... 30 VDC
Max. power input during rated operation	SP21 / SP61 (4 ... 20 mA): 630 mW SP22 / SP62 (0 ... 10 V): 300 mW
Current drain at rated operation	SP21 / SP61 (4 ... 20 mA): Signal current, max. 21 mA SP22 / SP62 (0 ... 10 V): 10 mA
Apparent ohmic resistance	SP21 / SP61 (4 ... 20 mA): R_L = 571 Ω at 24 VDC SP22 / SP62 (0 ... 10 V): $R_L \geq$ 10 kΩ
Short circuit strength	continuous
Reverse battery protection	available
Insulation resistance	> 100 MΩ at 500 VDC
Dielectric strength	500 VAC
Surge protection	36 VDC

"METPOINT® gives us maximum transparency. Monitoring enables us to keep a constant eye on our processes. The crucial data are processed in such detail and structure that they always give us an ultimately reliable overview. This overview enables us to respond immediately when measurements reach a critical value. As they are continuously stored in the data logger, we can compare business units and identify savings potential more easily. Overall, these measurement devices have made our production processes demonstrably more economic."

MONITORING & DATA LOGGING

You require constant high-quality compressed air for your processes? Then it is important to monitor all parameters constantly. Even the smallest deviations from the norm can have serious consequences for your plants and your production. Monitoring by **BEKO** TECHNOLOGIES makes all the relevant data accessible to you and your employees at a glance, ensuring the safety of your processes and the quality of your products. Are you looking for ways to increase the efficiency of compressed air treatment at your company? Data logging by **BEKO** TECHNOLOGIES helps you achieve this easily. Demand-oriented data storage and analysis allows you to compare business units and identify the real savings potential. In this way you can take your energy management and quality control requirements to the next level of success.

Our MONITORING and DATA LOGGING product portfolio

METPOINT® MMA

The METPOINT® MMA constantly analyses medical air to legally specified threshold values, thereby ensuring critically important levels are permanently being met.

METPOINT® BDL

The METPOINT® BDL data logger translates the data of the compressed air treatment into clear statistics and graphs.

METPOINT® BDL compact

The METPOINT® BDL compact screen recorder displays the status of all parameters in your compressed air system. Optionally, an integrated data logger translates these data into easy-to-read statistics and graphs.

METPOINT® OCV

The METPOINT® OCV monitors your compressed air for residual oil content – permanently, with great precision. The system uniquely enjoys TÜV certification.

METPOINT® OCV

Many stages of compressed air treatment contain the risk of oil contamination, and often this is unknown. Compressed air contaminated by oil is a danger for production plants, for the environment and where the products relate to people, potentially for health. Precise monitoring of the oil vapour content in the compressed air is therefore highly important – and often not understood.

The METPOINT® OCV is the first TÜV-certified online system for detecting the oil vapour content in compressed air. The system can be easily integrated into existing compressed air network and used to protect production and products.

Benefits

- **Certified, unrivalled precision**
- **Trouble-free IT accessibility**
- **Continuous online measurement**
- **Easy handling**

How it works

Analysing and managing compressed air quality is of crucial importance, particularly in sensitive production areas in the chemical and pharmaceutical industry, the food and beverage industries, and surface coating industries. The METPOINT® OCV continuously monitors the residual oil vapour content of the compressed air flow. Analyses down to a thousandth mg/m³ of residual oil content will be monitored online. This ensures permanent process reliability and eliminates the need for time-consuming sampling and laboratory analyses. The data from the continuous online measurement are used both to identify sources of contamination and to document compressed air quality.

Technical data

METPOINT® OCV Sensor Unit

Control of the residual oil content

Technical data	
Dimensions (mm)	487 x 170 x 120 (width x height x depth)
Power supply	230 VAC 50 Hz ± 10 % or 115 VAC 60 Hz ± 10 %
Medium	Compressed air, free of aggressive, corrosive, caustic, toxic, inflammable and flammable components
Measurable substances	Poly-alpha-olefins, aromatic hydrocarbons, aliphatic hydrocarbons, hydrocarbons, functional hydrocarbons
Measured quantity	Residual oil content in mg/m³ (based on standard cubic meter according to ISO 1217; 1 bar, 20 °C, 0 % relative humidity)
Measurement range	≤ 0.01 ... 5,000 mg/m³ residual oil content (according to ISO 8573-1)
Measurement accuracy	0,003 mg/m³
Detection limit (residual oil)	0,0006 mg/m³
Connection	G 3/8" female thread, please follow installation instructions
Installation requirements	Horizontally in the standpipe using a measuring section free of oil and grease
Inlet	10 x DN (min. 200 mm) / acc. to ISO 8573-2
Outlet	3 x DN (min. 100 mm) / acc. to ISO 8573-2
Operating conditions	
Sample gas humidity	< 40 % rel. humidity, DTP max. +10 °C
Operating pressure*	3 bar [psig] ... max. 16 bar [psig]
Ambient temperature	+5 ... +45 °C
Compressed air temperature on entering	+5 ... +55 °C
* Other operating pressure values available	

METPOINT® OCV Evaluation Electronics

Control of the residual oil content

Technical data	
Operating temperature	+5 ... +50 °C
Storage temperature	+5 ... +50 °C
Dimensions (mm)	230 x 200 x 120 (width x height x depth)
Outputs	Potential-free changeover contact, 230 VAC 5 A or 30 VAC 2 A analog 4 ... 20 mA, optional Ethernet interface
Power supply	230 VAC 50 Hz, or 110 VAC 60 Hz
Memory	2 GB internal memory

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Technical data							
Measuring section	DN 20 ¾"	DN 25 1"	DN 32 1¼"	DN 40 1½"	DN 50 2"	DN 65 2½"	DN 80 3"
Type	MS-2016	MS-2516	MS-3216	MS-4016	MS-5016	MS-6510	MS-8010
PN (bar [psig])	16	16	16	16	16	10	10
A (mm)	430	480	550	600	905	1105	1155
B (mm)	120	120	130	180	190	260	320
C (mm)	475	530	610	670	980	1220	1270
R	R¾"	R1"	R1¼"	R1½"	R2"	R2½"	R3"
D1 (ø mm)	26,9 x 2,6	33,7 x 3,6	42,4 x 3,6	48,3 x 3,6	60,3 x 3,6	76,1 x 3,6	88,9 x 4,0

Technical data	
Material	Stainless steel, free of oil and grease
connection for sampling probe E	¾" female thread, oil-free
Cylindrical Whitworth pipe thread	DIN 2999

METPOINT® MMA

Artificial respiration of patients requires a maximum of sensitivity and watchfulness. Even minor air contamination can seriously endanger the life of a patient. Professionals who have responsibility in this area need to have the security of constant and reliable quality monitoring. The METPOINT® MMA System was specifically developed for use in hospitals and measures all the relevant parameters of medical compressed air at the same time – for maximum compressed air quality and for the well-being of your patients.

Benefits

- Continuous monitoring of breathing air quality
- Safe long-term use
- Sustainable quality management
- Remote access thanks to complete network integration

How it works

The METPOINT® MMA System continuously monitors medical compressed air. All relevant parameters are directly and precisely indicated on the display and permanently logged. If a limit value is exceeded, the system marks it red and immediately triggers an alarm, which can be specifically accessed or directly processed in the quality assurance system. The event journal chronologically reports all system information and notifications. The METPOINT® MMA System documents compliance with all limit values and gives you the certainty that your medical compressed air meets the highest quality standards. This allows you to comply with the legal obligations set forth in the European Pharmacopoeia and to confidently take responsibility for your patients.

Technical data

METPOINT® MMA

Control of medical breathing air

Technical data for the METPOINT® MMA sensor unit	
Measurement gas	Medical compressed air
Recognisable substances	O_2, CO, CO_2, SO_2, NO, NO_2 Residual humidity
Permitted measurement gas operating pressure	4.0 ... 16.0 bar(g)
Measurement gas temperature	+10 °C ... +50 °C
Ambient temperature during operation	+10 °C ... +45 °C
Storage and transport temperature	-30 °C ... +50 °C
Ambient humidity	0 ... 95 %, non-condensing
Ambient pressure	700 ... 1200 mbar
Measurement gas flow	5.0 standard l/min.
Compressed air – inlet	G1/4" female thread, in acc. with ISO 228-1
Humidified air – inlet	G3/8" female thread, in acc. with ISO 228-1
Humidified air – outlet	G1/8" female thread, in acc. with ISO 228-1
Water flow	0.1 l/min.
Water consumption	2.4 l/day

Water pressure at the MMA air unit inlet	1.0 ... 6.0 bar(g)
Reference gas – inlet	G1/4" female thread, in acc. with ISO 228-1
Reference gas flow	2.2 standard l/min.
Reference gas operating pressure	4.0 ... 6.0 bar(g)
Supply voltage	100 ... 253 VAC 1PH. / PE 47 ... 63 Hz
Operating current	0.15 A at 230 VAC / 50 Hz
Max. power input	50 VA
Internal fuse	T2.5 AH, G fuse 5 x 20 mm
Protection class	IP 20
Power cable	Max. cladding diameter: 6.7 mm, Stranded wire cross section: 0.75 mm², with safety plug and protective earthing
Dimensions W x H x D	481 x 465 x 175 mm
Weight: MMA sensor unit	25.0 KG

METPOINT® BDL

The precise measurement of leakages, dew point, pressure, volume flow and temperature is very important in compressed air treatment. Precise values, automatic diagnosis of threshold violations and comprehensive data evaluation play an important role. After all, optimal quality assurance cannot be guaranteed without a sensitive analysis of all relevant parameters of compressed air supply. The METPOINT® BDL data logger combines all requirements for quality control and energy management in a single device by translating all measurements that occur in compressed air treatment into clear statistics and graphs.

Benefits

- Unlimited web capacity
- Integrated web server optional
- Precise cost and consumption controls
- Optional consumption analysis
- Flexible graphic presentation of measurement values
- Easily expandable

How it works

The METPOINT® BDL is an advanced screen-accessible data-recorder for combining the measured values of all relevant parameters in compressed air and gas applications.

Up to twelve analogue and/or digital sensors can be effortlessly configured and connected.

The electronic monitoring system measures the input signals currently connected and determines the information required for the relevant application. This information is displayed on the device and is automatically stored for later analysis. The process events can be archived over a long period, and alerts can be transmitted to higher-level systems. As a result, the screen recorder allows direct assessment of the processes and quick on-site intervention when required.

The 7" colour display with touch-screen technology indicates all measured data, providing curves for all measurands and showing any threshold violations. In combination with the consumption volume analysis, you can calculate daily, weekly or monthly evaluations with all applicable costs using these meter readings.

Technical data

METPOINT® BDL

Control of parameters critical to quality

Technical data	
Dimensions (mm)	300 x 220 x 109 (width x height x depth)
Connections	16 x M12 x 1.5 nickel-plated brass for sensor and supply, alarm relay, 1 x RJ45 Ethernet
Weight	7.3 kg
Housing material	Powder-coated aluminium, polyester front film
Sensor inputs	4/8/12 sensor inputs for analog and digital sensors, can be freely connected Digital **BEKO** TECHNOLOGIES sensors for dew point and consumption with SDI interface FLM / DPM series RS 485/ModBus RTU digital remote sensors, other bus systems feasible on request Analog **BEKO** TECHNOLOGIES sensors with pressure, temperature, current probe preconfigured Analog remote sensors 0/4 - 20 mA, 0 - 1/10/30 V, pulse, Pt100/Pt1000
Power supply for sensors	Output voltage: 24 VDC ± 10% galvanically isolated output current: 130 mA continuously running, peak 180 mA Maximum output current via all channels with - one power supply unit: 400 mA - two power supply units: 1 ampere Maximum power consumption at - one power supply unit: 25 VA - two power supply units: 50 VA
Interfaces	USB stick, USB cable, Ethernet/RS 485 Modbus RTU/TCP, SDI and other bus systems on request, web server optional

Outputs	4 relay outputs (max. switching voltage: 400 VAC / 300 VDC, switching current min. 10 mA, max. 6 A), alarm management, relays freely programmable, summary alarm Analog output and pulse at sensors with its own signal output looped through, such as DP/FS series
Memory card	Memory size 2 GB SD card standard, optional up to 4 GB
Power supply	100 ... 240 VAC / 50 ... 60 Hz, special version 24 VDC
Colour display	7" TFT transmissive touchscreen, graphics, charts, statistics
Accuracy	See sensor specifications
Operation temperature	0 ... +50 °C
Storage temperature	-20 ... +70 °C
Optional	Web server
Optional	Rapid measurement with 10 ms sampling rate for analog sensor, max./min. display per second
Optional	"Consumption analysis" statistics, daily / weekly / monthly report
Optional	Math. calculation function for 4 virtual channels
Optional	Totaliser function for analog signals
Software	METPOINT® Reader SW201
Software	METPOINT® Connect

METPOINT® BDL compact

The little brother of the METPOINT® BDL, features a convincing combination of compact design and comparable performance when analysing compressed air quality, providing comprehensive evaluation of measured data and giving an immediate display of threshold violations. The METPOINT® BDL compact makes all important compressed air parameters visible and generates them in accordance with your requirements. It enables comparison of business units and reveals hidden cost drivers. Clear statistics and graphs create transparency: these effective tools prove the quality assurance standard and energy management performance of your organisation.

Benefits

- **Intuitive touchscreen operation**
- **Integrated data logger**
- **Integrated web server optional**
- **Precise cost and consumption control**

How it works

The METPOINT® BDL compact has two inputs for consumption sensors and dew-point sensors. Two additional digital or analogue inputs are available on request, such as for power meters or pressure sensors. Critical points in your processes are therefore directly monitored. This shortens your response time and enhances process and product safety. The compact screen recorder is also available with an optional data logger with a memory capacity of 2 GB. This enables curve progressions to be traced back to the initial measurement, thereby ensuring continuous quality and efficiency improvement.

Technical data

METPOINT® BDL compact

Control of parameters critical to quality

Technical data	
Dimensions (mm)	137 x 137 x 176 (width x height x depth)
Connections	7 x M12 cable connection x 1.5 nickel-plated brass 1 x RJ45 Ethernet connection
Weight	2.6 kg
Housing material	Powder-coated aluminium, polyester front film
Sensor inputs	2/4 sensor inputs for analog and digital sensors, can be freely connected Digital **BEKO** TECHNOLOGIES sensors for dew point and consumption with SDI interface FLM / DPM series RS 485/ModBus RTU digital remote sensors, other bus systems feasible on request Analog **BEKO** TECHNOLOGIE‘ sensors with pressure, temperature, current probe preconfigured Analog remote sensors 0/4 ... 20 mA, 0 ... 1/10/30 V, pulse, Pt100/Pt1000
Power supply for sensors	Output voltage : 24 VDC ± 10% Output current: a) Digital board 120 mA continuously running b) Analog board Maximum output current via all channels 280 mA Maximum power consumption 12 VA
Interfaces	USB stick, USB cable, Ethernet/RS 485 Modbus RTU/TCP, SDI and other bus systems on request, web server optional

Outputs	2 relay outputs (max. switching voltage: 400 VAC / 300 VDC, switching current min. 10 mA, max. 6 A), alarm management, relays freely programmable, summary alarm Analog output and pulse at sensors with its own signal output looped through, such as FLM/DPM series
Power supply	100 – 240 VAC/50 – 60 Hz, special version 24 VDC
Colour display	3.5” TFT transmissive touchscreen, graphics, charts, statistics
Accuracy	See sensor specifications
Operation temperature	0 ... +50 °C
Storage temperature	-20 ... +70°C
Optional	Data logger, 2 GB SD card standard, optional up to 4 GB
Optional	Web server
Optional	Ethernet / RS 485 interface (MODBUS protocol)
Optional	Galvanically isolated pulse output
Software	METPOINT® Reader SW201

METPOINT® BDL portable

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.

Other winning features of this compact, high-performance measuring device include service-friendly data collection with an integrated data logger, colour graphs and straightforward interpretations of the data thanks to the METPOINT® Reader SW201 evaluation software.

Benefits

- **Universal sensor inputs**
- **Intuitive 3.5"-touchscreen operation**
- **Integrated data logger**
- **Flexible graphic presentation of measurement values**

Image of portable dew-point measuring set

How it works

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 consumption and flow rates, vacuum and pressure levels, as well as residual moisture and dew point.

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.

Technical data

METPOINT® BDL portable

Mobile monitoring of parameters critical to quality

Technical data	
Dimensions (mm)	82 x 96 x 245 (width x height x depth)
Weight	450 g
Housing material	PC / ABS
Power supply for sensors	Output voltage: 24 VDC ± 10% Output current: 120 mA during constant operation
Interfaces	USB-interface
Mobile power supply	Internal rechargeable lithium-ion batteries, charge time approx. 4 hours In constant operation > 4 hours depending on power consumption for external sensor
Power supply unit	100 – 240 VAC / 50 – 60 Hz, 12 VDC – 1A Safety class 2, only for use in dry spaces
Colour display	3.5" Touchscreen TFT ttransmissive touchscreen, charts, curves, statistics
Operating temperature	-20 ... +70 °C measuring gas temperature 0 ... +50 °C ambient temperature
Storage temperature	-20 ... +70 °C
Optional	Data logger memory capacity: standard 2-GB memory card; optional up to 4 GB
EMV	DIN EN 61326

Image of portable measuring device

METPOINT® UD01

On-site access to data and information in real-time is critical to a number of production and treatment processes when it comes to directly evaluating the quality of applications and processes and the ability to intervene, if necessary.

Thanks to the METPOINT® UD01 plug-on display, users can now display measurement data right at the source: the transducer. In addition to the practical overview of the current process parameters, the measured values can also be transferred without any hassle to a data logger, such as the METPOINT® BDL, or to a higher-level control system.

Benefits

- **Flexible integration**
- **Intuitive configuration**
- **Integrated diagnostics system**
- **Safe on-site display**

How it works

The METPOINT® UD01 plug-on display is suitable for all transducers with a 4 – 20 mA / two-conductor analogue output. The display is simply attached between the plug and the cable box and then immediately ready for use. It is freely programmable using a menu system operated by two buttons.

The programmed parameters are stored using EEPROM, which means that they are not affected in the event of a loss of power. A dialogue warning is displayed if the limits at either end of the range are exceeded.

Technical data

METPOINT® UD01

Display of parameters critical to quality

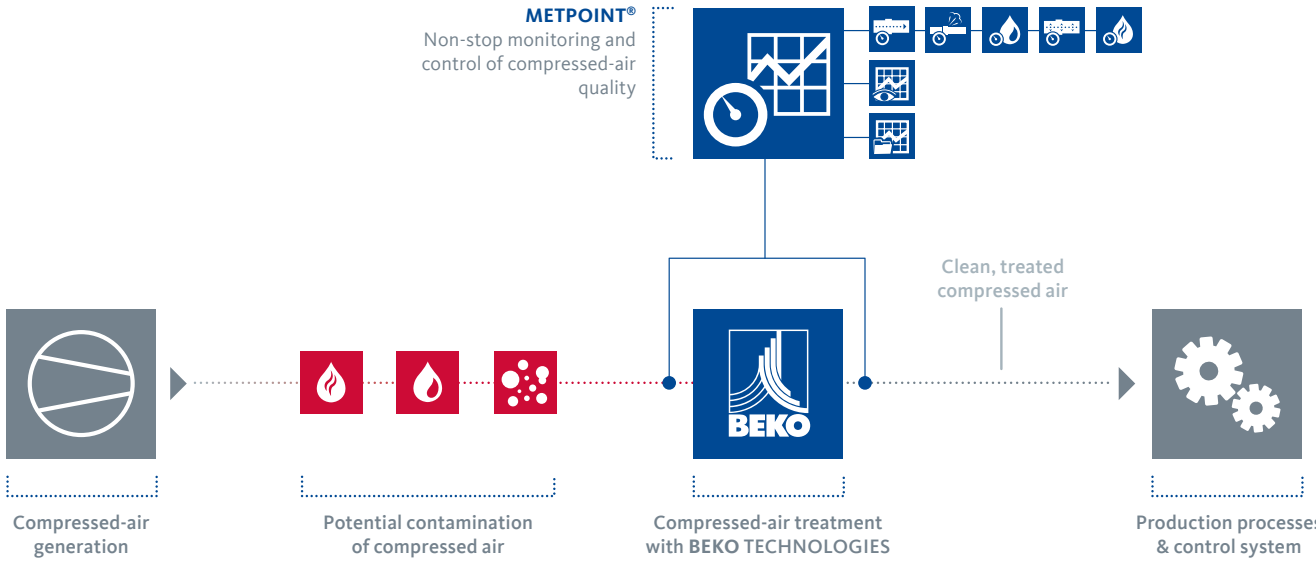
Technical data	
Outputs	4 – 20 mA (two-conductor)
Electrical protective measures	
Short-circuit resistance	permanent
Polarity reversal protection	No damage if connectors are inadvertently mixed up, but no function
Electromagnetic compatibility	Emitted interference and interference resistance according to EN 61326
Safety-related maximum values	U = 28 V, ∑I = 93 mA, ∑P = 660 mW
Display	
Type	Four-digit, red LED display, digit height 7 mm, digit width 4.85 mm
Range	-1999 ... +9999
Accuracy	0,1 % ± 1 Digit
Digital attenuation	0,3 ... 30 s (programmable)
Update of display value	0,0 ... 10 s (programmable)

Mechanical stability	
Vibration	5 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 ms
Operating temperature	-25 ... +85 °C
Storage temperature	-40 ... +85°C
Housing material	PA 6.6, polycarbonate
Weight	ca. 100g
Backup	non-volatile EEPROM
Protection class	IP 65

Systematic quality: worldwide

We at **BEKO** TECHNOLOGIES develop, manufacture, and distribute products and systems for an optimised compressed-air and compressed gas quality throughout the world. From the processing of compressed air and compressed gases through filtration and drying, via proven condensate technology, to instruments for quality supervision and measurement. From the small compressed-air application to demanding process technologies.

Since its founding in 1982, **BEKO** TECHNOLOGIES has continuously given decisive impulses to compressed-air technology. Our pathbreaking ideas have exerted considerable influence on the development. With this expertise and with our personal commitment, we at **BEKO** TECHNOLOGIES stand for trend-setting technologies, products, and services.



The product and system categories

Condensate drainage | BEKOMAT®

Filtration | CLEARPOINT®

Measurement technology
METPOINT®

Condensate processing
ÖWAMAT® | BEKOSPLIT®

Drying | DRYPOINT® | EVERDRY®

Process technology
BEKOBLIZZ® | BEKOKAT®

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