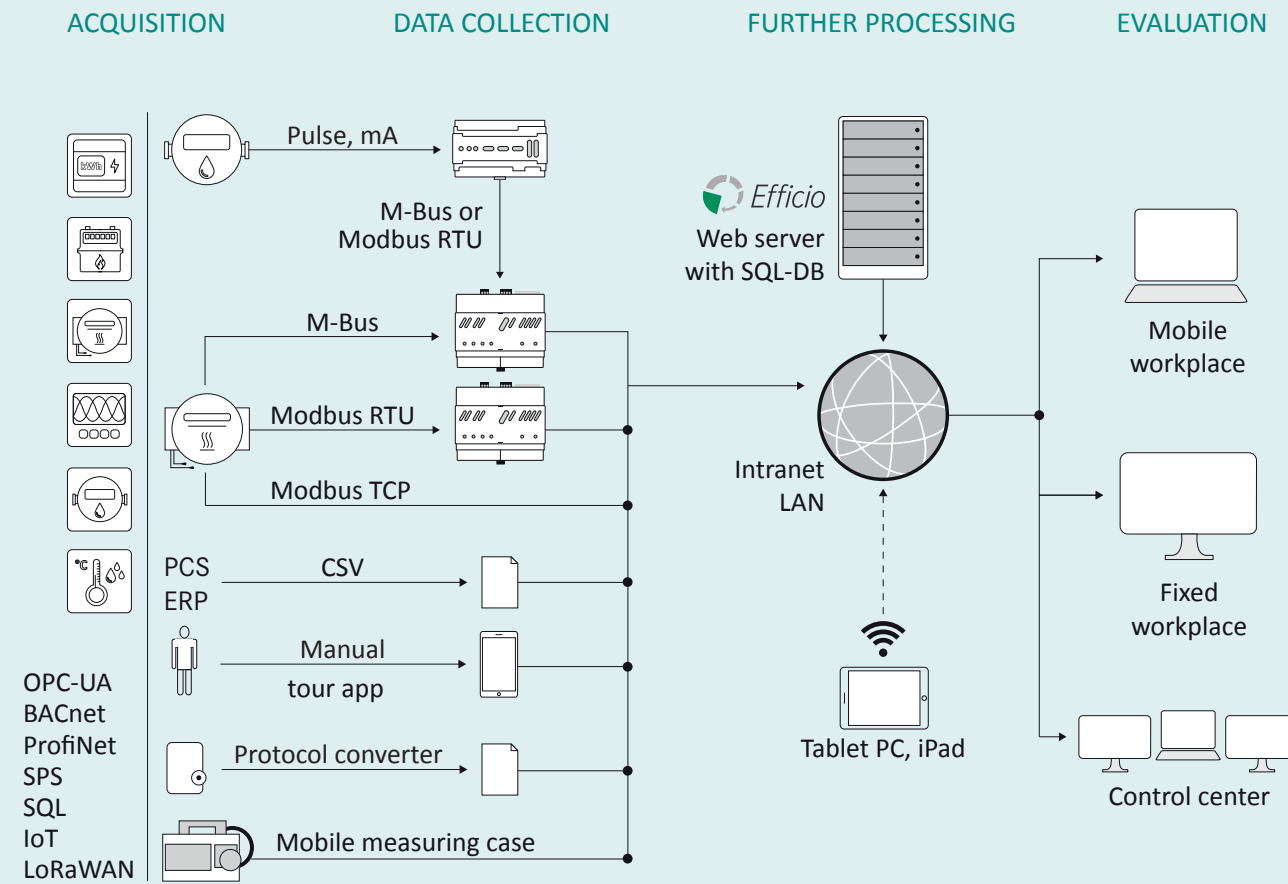




## Smart Energy and Load Management

Sensors for natural gas, compressed air, and technical gases from Berg provide precise, reproducible, and reliable measurement results. Via standardized interfaces like M-Bus, Modbus, or 4...20 mA, your measuring devices can be integrated into your energy management software very easily. With the energy monitoring system Efficio, you can reduce your energy costs through with full transparency, having absolute energy cost control. With the load management system Optimo, you can optimize your energy supply by reducing your grid charges and thereby minimizing your costs for maximum savings in energy, time, and money.

### Overview Diagram of Energy Data Acquisition



### Your Advantages with Our Energy and Load Management Solutions

- + Energy monitoring and load management in just one system
- + Full transparency through extensive analysis and reports
- + Quick installation, implementation, and handling
- + Quick identification from possible savings and potential for improvements
- + Securing of green image advantages over competitors
- + Switch or control electrical power generators and power consumers

### Smart Accessories to Effectively Complement your Gas Consumption Measurements

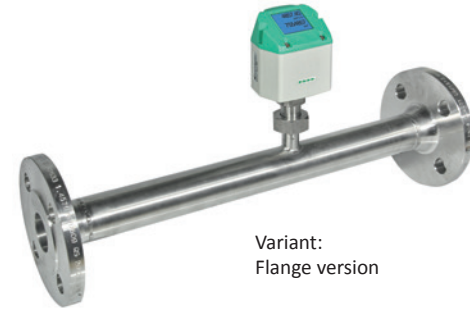
- Drilling jig**
  - + Drilling under pressure
  - + No business interruption
  - + Purchase or rental option
- Tapping clamp**
  - + Simple retrofitting of a measuring device
  - + No need to cut the pipeline
  - + Temporary compressed air measurement
- High-pressure protection**
  - + Recommended for operating pressure > 10 bar
  - + Secure mounting of the meter
  - + Personal security
- Leak detection with camera**
  - + Quick detection of leaks
  - + Determination of the potential savings
  - + Documentary report of leakage

## Flow Measurement Technology

For Natural Gas, Compressed Air, and Technical Gases



BMG 1000

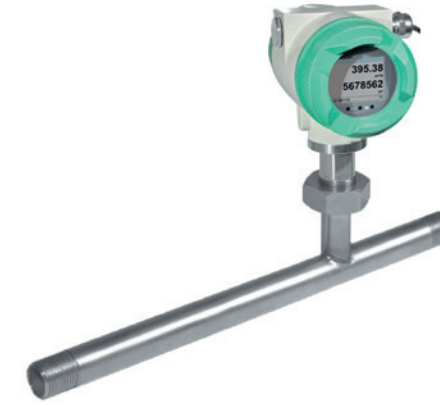


BMG 1020

Variant:  
Flange version



BMG 1050



BMG 1070



BMG 1025



BMG 1500

SENSORS

Sensor for compressed air and technical gases

Sensor for compressed air and technical gases

Sensor for natural gas and technical gases

Sensor for natural gas and technical gases

<b>Medium</b>	Compressed air, technical gases	Compressed air, technical gases	Natural gas, technical gases	Technical gases
<b>Application area</b>	Measurement of compressed air and gas generation systems for process optimization and leakage detection	Measurement of compressed air and gas distribution for process optimization and leakage detection	Meter for demanding measurement tasks of natural gas or technical gases for process optimization and leakage detection	Meter for demanding measurement tasks in gas distribution systems for process optimization and leakage detection
<b>Measuring principle</b>	Thermal mass flow sensor	Thermal mass flow sensor	Thermal mass flow sensor	Thermal mass flow sensor
<b>Reference standard compressed air</b>	ISO 1217: 1000 mbar, 20 °C	ISO 1217: 1000 mbar, 20 °C	ISO 1217: 1000 mbar, 20 °C	ISO 1217: 1000 mbar, 20 °C
<b>Reference standard technical gases (Nm<sup>3</sup>/h)</b>	DIN 1343: 1013.25 mbar, 0 °C	DIN 1343: 1013.25 mbar, 0 °C	DIN 1343: 1013.25 mbar, 0 °C	DIN 1343: 1013.25 mbar, 0 °C
<b>Medium temperature</b>	-30...80 °C	-30...80 °C/-20...70 °C	-40...110 °C/-20...70 °C	-40...110 °C/-20...70 °C
<b>Max. operating pressure</b>	50 bar <sup>1</sup>	16 bar <sup>1</sup>	50 bar <sup>1</sup>	16 bar
<b>Protection class</b>	IP 65	IP 65	IP 67	IP 67
<b>Accuracy</b>	± 1.5 % of measured value, 0.3 % of final value	± 1.5 % of measured value, 0.3 % of final value	± 1.5% of measured value, 0.3 % of final value ◦ ( ± 1 % of measured value, 0.3 % of final value)	± 1,5 % of measured value, 0.3 % of final value ◦ ( ± 1 % of measured value, 0.3 % of final value)
<b>Sensor with 1/2" screw-in thread</b>	DN 15–DN 300	–	DN 15–DN 300	–
<b>Integrated measuring section with thread</b>	–	• (½" – 3")	–	• (½" – 3")
<b>Int. measuring section w. stainless steel flange</b>	–	◦ (DN 15 – DN 80 acc. to DIN EN 1092-1)	–	◦ (DN 15–DN 80 acc. to DIN EN 1092-1)
<b>Measuring range factory setting</b>	Standard (92.7 m/s)	Max. (185 m/s)	Low speed (50 m/s)	Low Speed (50 m/s)
<b>Display</b>	•	•	•	•
<b>Output signals / communication</b>	One option (◦) selectable	One option (◦) selectable	One option (◦) selectable	One option (◦) selectable
<b>Modbus RTU</b>	•	•	•	•
<b>Output: analog (4...20 mA)/pulse (max. 50 Hz)</b>	•	•	•	•
<b>M-Bus</b>	◦ <sup>2</sup>	◦ <sup>2</sup>	◦	◦
<b>Modbus TCP</b>	◦ <sup>2</sup>	◦ <sup>2</sup>	◦	◦
<b>Modbus TCP PoE</b>	◦ <sup>2</sup>	◦ <sup>2</sup>	◦	◦
<b>DVGW (approval natural gas)</b>	–	–	•	◦
<b>ATEX II (approval Ex-area)</b>	–	–	◦	◦
<b>Power supply</b>	18...36 V DC, 5 W (except TCP PoE)	18...36 V DC, 5 W (except TCP PoE)	18...36 V DC, 5 W (except TCP PoE)	18...36 V DC, 5 W (except TCP PoE)
<b>Special features</b>	+ Simple installation under pressure + Integrated temperature measurement + Measurement of different gas types + LABS-/silicone-free version (option) + Sensor removal during operation + Bidirectional measurement (option)	+ Good price-performance ratio + Integrated temperature measurement + Measurement of different gas types + LABS-/silicone-free version (option) + Unscrewable measuring unit + Bidirectional measurement (option)	+ High measurement accuracy + Integrated temperature measurement + Measurement of different gas types + LABS-/silicone-free version (option) + Parts in contact with stainless steel + DVGW approval for natural gas on request	+ High measurement accuracy + Integrated temperature measurement + Measurement of different gas types + LABS-/silicone-free version (option) + Parts in contact with stainless steel + DVGW approval for natural gas on request

• Standard equipment/◦ Option

<sup>1</sup> High-pressure protection required from > 10 bar

<sup>2</sup> With this variant, the pulse output is omitted

<sup>3</sup> With this variant, the 4...20 mA output is omitted

SENSORS

Sensor for compressed air and nitrogen

Sensor for wet compressed air and hot gas

<b>Medium</b>	Compressed air, nitrogen	Humid compressed air, hot compressed air
<b>Application area</b>	Measurement of compressed air consumption of machines or equipment	Measurement of compressed air generation directly after the compression
<b>Measuring principle</b>	Thermal mass flow sensor	Differential pressure / back pressure
<b>Reference standard compressed air</b>	ISO 1217: 1000 mbar, 20 °C	ISO 1217: 1000 mbar, 20 °C
<b>Reference standard technical gases (Nm<sup>3</sup>/h)</b>	DIN 1343: 1013.25 mbar, 0 °C	–
<b>Medium temperature</b>	-20...60 °C/-20...60 °C	-30...180 °C/-30...70 °C
<b>Max. operating pressure</b>	16 bar	20 bar <sup>1</sup>
<b>Protection class</b>	IP 65	IP 65
<b>Accuracy</b>	± 1.5 % of measured value, 0.3 % of final value	± 1.5 % of measured value, 0.3 % of final value
<b>Sensor with 1/2" screw-in thread</b>	–	DN 20–N 500
<b>Integrated measuring section with thread</b>	• (¼" – 2")	–
<b>Int. measuring section w. stainless steel flange</b>	–	–
<b>Measuring range factory setting</b>	Max. (185 m/s)	High Speed (224 m/s)
<b>Display</b>	•	•
<b>Output signals / communication</b>	One option (◦) selectable	One option (◦) selectable
<b>Modbus RTU</b>	◦	•
<b>Output: analog (4-20 mA)/pulse (max. 50 Hz)</b>	◦	•
<b>M-Bus</b>	◦	◦ <sup>2</sup>
<b>Modbus TCP</b>	◦	◦ <sup>2</sup>
<b>Modbus TCP PoE</b>	◦	◦ <sup>2</sup>
<b>DVGW (approval natural gas)</b>	–	–
<b>ATEX II (approval Ex-area)</b>	–	–
<b>Power supply</b>	18...36 V DC, 5 W (except TCP PoE)	18...36 V DC, 5 W (except TCP PoE)
<b>Special features</b>	+ Low price counter series + Compact design + Measurement directly on the machine + No infeed/outfeed distance required + Integrated flow straightener	+ Measurement directly after compression + Humid air measurement + Measurement up to 180 °C (gas temp.) + Pressure- and temperature measurement included + Extremely fast response time