



# High concentration ozone gas analyzer BMT 964

The ozone analyzer BMT 964 includes over two decades of experience with ozone photometers and their industrial applications.

Superior stability of the photometer is achieved by use of a true dual beam optical system with an extremely long-life mercury lamp. MTBF of the instrument, including the lamp, is in excess of 65,000 hours. Excluding the lamp it is 120,000 hours.

The built-in microcontroller allows for programming many parameters of the instrument via the front panel, or via a Windows PC using the software BMT 964 Link (delivered with the instrument). E.g. the carrier gas can be programmed as air or oxygen (PSA oxygen).

A complete error and event log, with time stamps from the internal clock, can be printed out for trouble shooting.

Power supply is 100-240 VAC, or 12-36 VDC on request. As an option the instrument can be equipped with a built-in purge unit (solenoid valve plus air pump) for fully automatic zeroing.

A broad spectrum of field-proven accessories - from simple fittings and tubing up to a thermoelectric sample gas dryer - helps the user with the application and installation of the ozone analyzer BMT 964.



## APPLICATIONS

- Monitoring of ozone generator output
- Monitoring of residual ozone after a process
- Potable water treatment
- Waste water treatment
- Industrial ozone processes
- Semiconductor ozone processes





The ozone analyzer BMT 964 is a panel-mount instrument according to DIN 43 700. The front panel cut-out should be 139 x 67 mm. The instrument is held in place by two clamps.

Fittings for the inlet and outlet tubing, and the connectors for power, signals, and RS-232 interface, are located on the back panel. The total depth thus is about 250 mm.

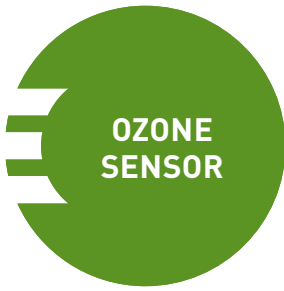
Additional BMT Products (for details, refer to the appropriate data sheets):

- BMT 964 BT (Bench Top) for stand-alone applications on the bench
- BMT 964 C (Cabinet) for truly automatic standalone applications in a rough service environment
- BMT 964 AQ and BMT 964 AQ-inline for ozone measurement in DI (de-ionized) water
- BMT DH3 Sample Gas Dehumidifier for drying of wet ozone sample gas
- BMT 932 Ozone Monitor for TLV monitoring in ambient air (1, 3 & 6 channels)
- Ozone generators BMT 802X and BMT 803 for small scale ozone production from oxygen

## FEATURES

- Dual beam UV photometer
- Long-life mercury lamp
- Warranty 3 years, 5 years on the UV lamp
- High accuracy, error less than 0.5%
- Pressure and temperature compensated
- Ranges from 2 to 600 g/Nm<sup>3</sup>
- Built-in sample gas filter
- Built-in purge unit as an option
- Relay contact for control of automatic zeroing
- Failure warnings include: lamp low, cuvette dirty, overrange, summary error
- Key functions programmable via the front panel, or a Windows PC
- Display in g/Nm<sup>3</sup>, %wt/wt, or ppmv
- High and low limit alarms
- Timing sequence for automatic zeroing
- Pressure readout in bar, psi, Torr or MPa
- 4-20mA and 0-10V isolated outputs
- RS-232 interface (bidirectional, isolated)





## TECHNICAL SPECIFICATION

Measurement principle	Dual-beam UV photometer (254 nm), no moving parts
MTBF	Instrument incl. UV lamp 65,000 h, excl. UV lamp 120,000 h
UV lamp	Low pressure mercury lamp, long life design, burnt-in for 300 h
Display	16 character alphanumeric backlit LCD
Concentration ranges	50, 100, 200, 300, 400, 500, 600 g/Nm <sup>3</sup> , selectable units g/Nm <sup>3</sup> , %wt/wt and ppmv
Optional ranges	2, 5, 10, 20 g/Nm <sup>3</sup> , selectable units g/Nm <sup>3</sup> , %wt/wt and ppmv
Accuracy	After zeroing the max. error is the sum: 0.4% of measurement + 0.1% of scale
Repeatability error	0.2% of measurement
Response time	0.03 s (analog output), 0.3 s (display)
Zero drift	Typ. 0.2% of range per day, after warm-up, non-cumulative
Proof pressure	1 bar above pressure range
Ambient temperature	0 - 50°C (non-condensing)
Materials in contact with ozone	Quartz (cuvette windows), Al <sub>2</sub> O <sub>3</sub> (cuvette), FPM (window seals), PTFE (tubing), stainless steel (fittings, cuvette spacer)
Gas ports	For PTFE tubing 3x5 mm (1/8" x 3/16"), opt. 1/8" Swagelok, or 4x6 mm PTFE Built-in sample gas filter is standard
Recommended flow rate	0.1 to 1 l/min typical
Pressure drop	Approx. 3 mbar at 0.5 l/min (with sample gas filter)
Temperature compensation	Is standard
Pressure compensation	With built-in cuvette pressure transducer, for ozone measurement at an arbitrary systemic pressure, abs. pressure range 1.15 bar (optional 1.5 to 4.0 bar in steps of 0.5, please specify) minimum pressure 0.4 bar abs units selectable: bar, psi, Torr, Mpa
Signal outputs	Concentration 4 - 20 mA (isolated, active), Concentration 0 - 10 V (isolated)
Concentration alarms	High alarm, Low alarm, latching, not latching
Control input	Set to zero (24 V, 18 mA, isolated)
Control outputs	Relay contacts, 28 V, 0.5 A, isolated: Lamp low, cuvette dirty, high alarm, low alarm, purge control
Error handling	Error relay: 30 V, 1 A, summarizing instrument failures. Warnings and errors: lamp low warning, lamp low error, lamp off error, cuvette dirty warning, cuvette dirty error, overrange, overpressure
Serial interface	RS-232, bidirectional, isolated, 2400 - 38400 Baud
Automatic zeroing	With opt. external or internal purge pump and solenoid valve (e.g. BMT Purge Unit)
Software	BMT 964 Link, instrument configuration and readout of Event and Error Logs on a Windows PC
Power	Wide range input: 100 - 240 VAC, 15 VA, optional: 12 - 36 VDC, 15 W
Dimensions (WxHxD)	144 x 72 x 230 mm, DIN 43 700
Panel cut-out (W x H)	139 x 67 mm
Weight	1.5 kg