O Z O N E A N A L Y Z E R B M T 9 6 1 C L

(cabinet version)

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OZONE ANALYZER BMT 961 CL
(cabinet version)

This manual is a supplementary description to be used together with the original manual "OZONE ANALYZER BMT 961, Installation and Application" (enclosed).

The OZONE ANALYZER BMT 961 CL (cabinet version) is a standard BMT 961 ozone photometer built into a wall mounted cabinet, combined with several complementary devices:

- sample gas filter
- throttle valve
- flow meter
- PURGE UNIT (solenoid valve plus air pump)
- ozone catalyzer
- electronic interface unit (TIMER or PLC INTERFACE)

If the sample gas is wet, or contains substances which could deteriorate the function of the catalyst, the instrument can be (optionally) completed with (externally mounted)

- sample gas dehumidifier DH 3
- thermal ozone destructor THD 1 (instead of the catalyzer)

Dimensions of the steel cabinet are 257 x 310 x 325 mm (W x H x D, see sketch). The weight is approx. 10 kg.

The instrument and its electronics are designed according to the European EMC standards for the operation in industrial environments.

The photometer and the PURGE UNIT can be removed easily, in case of failure, or for maintenance.

Flow Scheme of Sample Gas

The sample gas is fed into the external tube fitting (for 3 x 5 mm TEFLON tubing) of the sample gas filter, which is located on the lower side of the cabinet. From the internal fitting of the filter the sample gas flows to the throttle valve built into the flow meter (at the front panel of the instrument). The flow meter shows the actual sample gas flow, which should be about 0.3 to 1 l/min. From the flow meter the sample gas passes through the 3/2-way electric solenoid valve of the PURGE UNIT. When the PURGE or AUTO ZERO function is initiated the solenoid valve shuts off the sample gas flow, and connects the photometer with the small electric air pump of the PURGE UNIT.

The function AUTO ZERO means: The solenoid valve and the air pump are activated for several seconds (to purge the photometer cuvette free of ozone), and then the photometer output signal is zeroed (to guarrantee zero reading at zero ozone concentration).

The function PURGE means: The solenoid valve and the air pump are activated but no zeroing of the photometer is performed.

Filtered room air is used to purge the cuvette of the photometer. From the photometer the sample gas is fed to the (externally mounted) ozone catalyzer.

The filter insert of the sample gas filter should be inspected from time to time. If it is dirty it should be replaced by a new one. A box with 20 filter inserts has been supplied with the instrument.

ATTENTION: The OZONE ANALYZER BMT 961 CL (cabinet) is designed to be operated in the "leak" configuration: The sample gas is depressurized in a throttle valve, and then flows through the photometer. From the photometer the gas is fed through a catalyzer and then is vented to the atmosphere. Measurement in the photmeter cuvette takes place nearly at atmospheric pressure. The instrument is not designed for "bypass" operation under elevated systemic pressure. If "bypass" configuration would be in question, please contact factory.

The OZONE ANALYZER BMT 961 CL can be equipped with two different types of electronic interface boards:

TIMER	12/24 h automatic purging and zeroing, isolated 4-20 mA signal output, isolated failure contacts (NC or NO)
PLC INTERFACE	to monitor and control the instrument by a PLC

TIMER

The automatic TIMER may be used in ozone systems without a PLC (Programmable Logic Controller). Access to the electronic TIMER is via the lower access door of the steel cabinet. Electric connections to the TIMER, and its functions, are as follows:

Power input: via the pluggable, orange 3-terminal block **POWER IN** (see sketch). Mains voltage is indicated on the mains transformer of the TIMER board.

CAUTION: Power ground must be connected to the (left) terminal marked with the ground symbol ⏚! Do not use terminals **961 P** and **AUX !**

Signal output: via the pluggable, green 6-terminal block, at terminals **4-20 mA HI** and **LO.** The cable shield has to be connected to terminal **SHIELD.**

Failure contacts: via the same pluggable green terminal block, at terminals **FAIL: COMM, ON,** or **OFF.** In case of an instrument failure the relais contact will be closed between **COMM** and **ON,** and is open between **COMM** and **OFF.**

Failures to be signalled by the failure relais (max. 60 V/0.5 A) are:

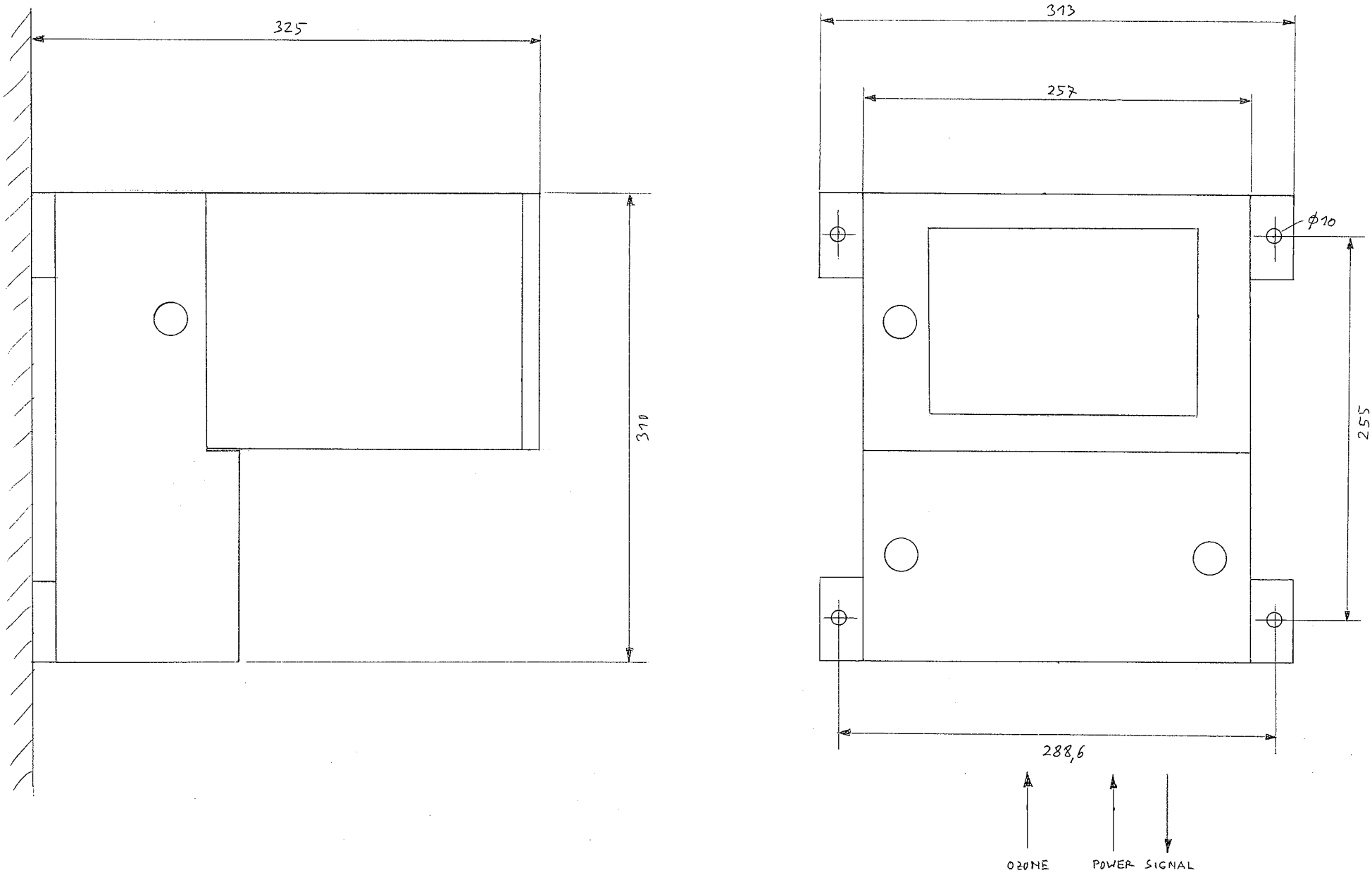
power failure (mains voltage low)
DC voltage failure (internal supply voltages low)
lamp low (UV lamp is weak, or failing)
auto zero failure (photometer cannot be zeroed)
processor failure

CAUTION: Do not make any connections to other terminals than those mentioned above!

When the instrument is connected to the power line the TIMER will initiate an AUTO ZERO cycle after 30 seconds, and another one after 10 minutes warm-up. The AUTO ZERO cycle will be repeated automatically after 12 or 24 hours, depending on the setting of the **12/24 h** slide switch (see sketch). The AUTO ZERO cycle can be initiated manually, too: either with the **AUTO ZERO** push button on the front panel of the OZONE ANALYZER BMT 961 (with the tip of a pencil etc.), or with the flat push button **AUTO ZERO (manual)** on the TIMER board (see sketch). After each AUTO ZERO cycle the 12/24 h interval is started again, regardless of the initiation: automatic, or manual.

During an AUTO ZERO cycle the 4-20 mA concentration signal will be held (HOLD function) automatically at the last value measured before the initiation of the zeroing cycle, whilst the digital display will show the actual concentration (which shall reach zero at the end of the zeroing cycle). The HOLD function is disabled not before the measuring cuvette is filled with the sample gas again.

The push button **PURGE** at the front panel of the instrument will actuate only the PURGE function. No zeroing of the photometer is performed whilst this push button is depressed. The digital display then will show the actual reading of the photometer without ozone in the cuvette. The 4-20 mA current output is held at the last concentration value measured before the actuation of PURGE.



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