OZONE ANALYZER BMT 964

Dismantling the Analyzer and Cleaning the Cuvette

Rev. 07/2012

Attention: The installation of the power connector (pluggable terminal block) has to be done by a person aquainted with the problems involved. Do not connect or disconnect the terminal block as long as mains voltage is on!

1. Opening the enclosure

Remove the four screws at the corners of the rear panel using a 2 mm Allen wrench (do not loosen any other screws!), extract the device at its rear panel from the casing. The tubing connections or the filter may be used for pulling the device out, but do not pull on any cables.

2. Unscrewing the inner tubing connections

Unscrew the three knurled nuts fixing the cuvette's PTFE tubing to the rear panel and the pressure sensor and withdraw the tubing. While disconnecting the pressure sensor's tubing from the cuvette, make sure the mechanical stress on the sensor's leads is kept to a minimum.

3. Separating the lamp housing and the cuvette block from the circuit board

The lamp housing and the cuvette block - the black "T" on the circuit board - comprise an inseparable unit. This unit can be removed by unscrewing the four outer screws (M3 Philips) on the lower side of the circuit board. Do not loosen the two screws fixed with varnish - this could damage the UV lamp!

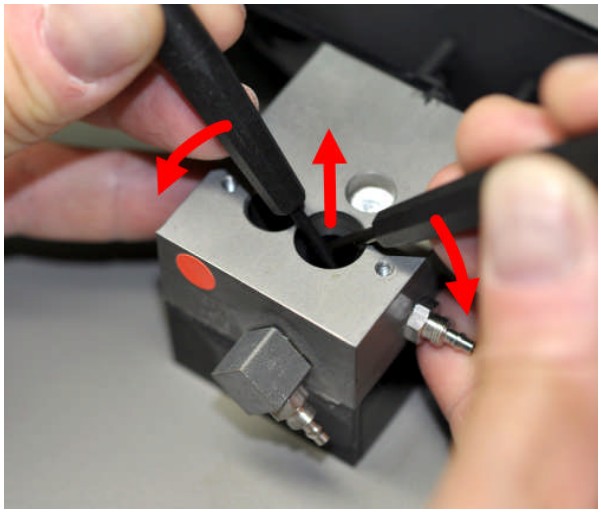
The cuvette opening (on the circuit board side) must always point upwards so that the inner parts of the cuvette do not fall out. Keep both the circuit board and the cuvette block pressed together (against the spring inside the cuvette block). In the cabinet version BMT 964 C, there is a seperate plate holding the inner parts in place while separating the "T" from the circuit board.

First, the two screws near the edge of the circuit board shall be unscrewed, followed by the two screws at the centre of the circuit board. The circuit board then is lifted from the cuvette block with the bottom side pointing upwards.

4. Dismantling the cuvette

The following parts may now be removed from the bore in the cuvette - and in this order:

- spring
- black aluminium ring
- white O-ring (seal)
- lower cuvette window (if separate from the spacer, ranges 50g/Nm^3 and lower)
- spacer, bonded to lower window (which determines the length of the cuvette)
- upper cuvette window
- white O-ring (though it normally remains in the cuvette block)



The aluminum ring usually does not fall out itself. Use two screw drivers as shown in the photo, insert them crossed over eachother into the aluminum ring in order to bring some force onto the inner side of the aluminum ring, and lift it out of the hole.

Cleaning the cuvette

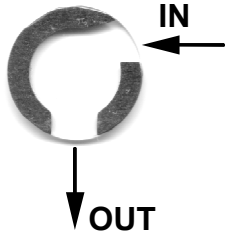
The cuvette window, spacer and seals can be cleaned with water (or with household detergent or alcohol). If the cuvette is soiled badly, check and clean the cuvette block (you can clean the 12mm bore with a "Q-Tip" or similar), the inner walls of the PTFE tubing, the filter holder and the fittings. Dry all the parts, and remove dust with a paint-brush, particularly from the seals. If necessary, use new (quartz) cuvette windows and O-rings (FFKM).

5. Re-assembling the cuvette

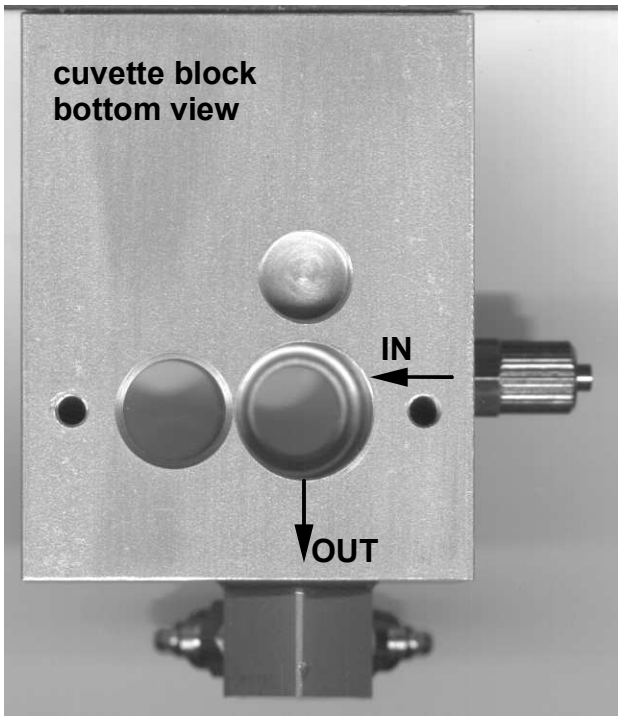
The assembly of the cuvette has to be done in reverse order of its disassembly:

- insert the upper O-ring (if it was removed)
- insert the upper cuvette window
- insert the spacer-window combination

The etched spacer is bonded to the lower cuvette window. The assembly must make sure that the radial opening is facing the outlet and the almost tangential opening matches the inlet and that the spacer is located between the two windows.



For the 50g/Nm³ range, a wire spacer is used, which consists of two thick rods and two thin wires which join them. During assembly, one of the two thicker rods is placed diagonally between the gas inlet and outlet (but without blocking them!).



For special measuring ranges, where a PVC spacer is used, there is only one possible orientation - whereby the openings of the spacer are lying adjacent to the cuvette block's holes.

Next:

- insert the lower cuvette window (if not combined with the spacer)
- insert the O-ring
- insert the black aluminium ring with the conical face pointing towards the sealing O-ring
- insert the spring

Join the circuit board with the cuvette block and fasten it with the four screws, first tightening the two screws near the cuvette. Whilst tightening the screws, press the circuit board and the cuvette block together (against the force of the spring) so that the spacer in the cuvette stays in its correct orientation.

6. Re-connecting the tubing

Re-connect the tubing to the fittings on the backplane and tighten the knurled nuts *by hand*. Now, a leak test is obligatory! If dust is not removed from the O-rings in the cuvette, fittings and tubing, this could result in an ozone leakage!

7. Closing the casing

Slide the circuit board into the casing's guide slots and fasten the rear panel with the four Allen screws.

8. Functional test

After thightening the screws holding the rear panel connect the instrument with power and allow warmup for a several minutes.

Zero the instrument and check the cuvette status value as described in the manual. Factory setting (= clean cuvette) is 0.0%.

If cleaning was unsuccessful, only a replacement of the cuvette windows will help, now.