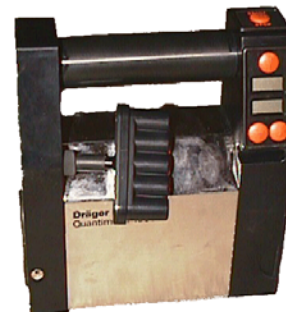


# Colorimetric Pumps

Dräger Quantimeter 1000  
March 2010

NOTE: Guides are to be used by trained personnel only and DO NOT replace the manufacturer's operations or technical manuals. These guides were developed by field personnel for utilization by EPA and their contractors and are helpful in quick start-up and operations. Various limitations have been identified through the experience of the development group. Different makes, models, and updates to this equipment may change the limitations. It is recommended that calibration, maintenance, and use be recorded in a log book. If you have any changes or revisions please email one of the following: [stevenson.peter@epa.gov](mailto:stevenson.peter@epa.gov), [boykin.michael@epa.gov](mailto:boykin.michael@epa.gov), [chong.margaret@epa.gov](mailto:chong.margaret@epa.gov), [kroone.janice@epa.gov](mailto:kroone.janice@epa.gov), [zintak.leonard@epa.gov](mailto:zintak.leonard@epa.gov).



## Uses:

The Quantimeter 1000 is an intrinsically safe battery powered gas detector pump that allows “hands free” operation of the Dräger-Tube System for the measurement of specific gases, vapors and aerosols in a complex ambient background for health and safety levels. Uses manifold to test five tubes at a time. This instrument must be used with Dräger tubes has been inspected and approved for operation in areas of explosion hazard.

## Limitations:

- Battery takes 14 hours to recharge.
- Operational Temperature Range is 32 °F (0 °C) - 104 °F (40 °C).

## Quick Start-up and Operation:

- Add battery assembly. (Insert battery pack so that contact pins of the device fit into the socket.)
- Press the I/O button to turn on instrument.
- Make sure that the indicated value counter displays “0” and the nominal value counter displays “0” or the most recently preset value. LCD will display “U” for undervoltage because of exhausted battery or blink “U” for a near exhausted battery (roughly 100 pumps left). LCD will display “F” for a malfunction; see instruction manual.
- Select the number of pump strokes to “2.” Insert an unopened tube gently into the tube holder. Push the Start/Stop key. The first stroke runs, the indicated value counter alternately displaying “0” and “1.” Pump is sufficiently gas tight when the second stroke has not commenced after 15 minutes. (See instruction manual if pump does not pass leak test.) Remove tube from the rubber sleeve.
- Choose tube in accordance with measurement task. (Read instructions for tube being used!)
- Open both ends of the Dräger tube with the Dräger tube opener. Insert the tube into the tube holder. (The arrow on tube points towards the rubber sleeve.) Use adapter for tubes in an upright position or when using the extension hose.
- Set the number of pump strokes (based on tube instructions). Push the “+” key to advance the number of pump strokes from 0 to 199. Push the “-” key to decrease the number of pump strokes from 199 to 0. Push and hold to advance quickly. If the nominal value is set to “0,” the pump works in **continuous operation**.

- Press START/STOP key. Measuring begins and the indicated value alternately displays the number of strokes already carried out and the presently running stroke. Pump automatically switches off after preselected strokes have been completed. If you are in continuous operation, there is no automatic termination. It will pump to 199 strokes and start back again at 0, looping until you press START/STOP to interrupt measurement.
- Evaluate color length or color depth vs. an unopened tube.
- Remove tube from the rubber sleeve. Clear out pump with several pump strokes.

### **Additional Operation Information:**

- Once programmed, the instrument can be set up let run unattended.
- The instrument is slightly faster than the hand pump.
- Because this unit is simply an automated pump for Dräger Tubes, the user should refer to the instruction for the Dräger Tube to be used for all detection limits, response times and other detection concerns.
- Use only Dräger brand tubes with this pump.
- All control elements are locked during measurement with the exception of the START/STOP key!
- May require additional pump stroke settings based on tube extensions and will be tube dependant. See individual tube instruction sheets.

<b>Troubleshooting</b>		
<b>Message</b>	<b>Cause</b>	<b>Remedy</b>
Undervoltage display “U”	<ul style="list-style-type: none"> <li>• Battery not charged</li> <li>• Battery defective</li> </ul>	<ul style="list-style-type: none"> <li>• Charge battery</li> <li>• Replace battery</li> </ul>
Blinking undervoltage display “U”	<ul style="list-style-type: none"> <li>• Remaining capacity approx. 100 strokes</li> </ul>	<ul style="list-style-type: none"> <li>• Charge battery</li> </ul>
No display	<ul style="list-style-type: none"> <li>• Contact jacks loose</li> <li>• Battery defective</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten contact jack</li> <li>• Replace battery</li> </ul>
Malfunction display “F”	<ul style="list-style-type: none"> <li>• Malfunction</li> </ul>	<ul style="list-style-type: none"> <li>• Call Dräger Service</li> </ul>
No suction at device	<ul style="list-style-type: none"> <li>• Tube not open</li> <li>• Tube holder contaminated</li> </ul>	<ul style="list-style-type: none"> <li>• Break off tube tips</li> <li>• Clean tube holder</li> </ul>
Device leaks	<ul style="list-style-type: none"> <li>• Valve clogged or damaged</li> <li>• Cap of tube holder loose</li> <li>• Bellows defective</li> </ul>	<ul style="list-style-type: none"> <li>• Clean valve or replace</li> <li>• Tighten cap at sleeve</li> <li>• Call Dräger Service</li> </ul>

### **Routine Maintenance:**

<b>Frequency</b>	<b>Action</b>	<b>Manual Reference</b>
Each Use	<ul style="list-style-type: none"><li>• Leak test pump</li><li>• Keep unit clean. Prevent debris from entering pump or operation mechanism.</li></ul>	Page 7
Every 6 Months	<ul style="list-style-type: none"><li>• Remove and Recharge unused batteries</li><li>• Inspection/Cleaning or Replacement of blow-off valve, tube holder and breaking facility.</li></ul>	Pages 11 and 12

### **Battery Information:**

- Maximum number of strokes with full battery charge is 1000 strokes.
- When unit gives a “U” display, there are approximately 100 strokes remaining. The battery should be recharged as soon as possible.
- OK to leave on charger but recommend battery replacement every 2 years or if unit does not operate for 8 hours.
- Used power packs: Do not incinerate. Do not open violently. Risk of explosion. Dispose as special waste.

**NOTE:** It is recommended that due to the many types of rechargeable battery configurations, that Equipment Managers verify proper battery charging and operation through monthly equipment operation until battery is discharged prior to recharging.

### **Main Inventory Items/Accessories:**

- 1 Dräger Quantimeter 1000 (81 01 000)
- 2 Batteries (81 00 230)
- 2 Five Tube Adapters
- 1 Dräger Tube Handbook
- 1 Shoulder Strap (68 01 952)
- 1 Three Meter Extension Hose (CH 07 274)
- 1 Tube Scorer/Breaker
- 1 Battery Charger w/ Adapter (68 05 855 / 81 00 270)
- 2 Five Tube Tip Scorer/Breaker
- 1 Operations Manual
- 1 Spare Parts Kits (81 01 005)
- 1 Extension Hose Adapter (81 00 225)

### **Shipping Information:**

There are no special shipping requirements.

**Contact Information (Technical Support):**

<http://www.draeger.com/ST/internet/US/en/index.jsp>

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