

# Dräger Pac<sup>®</sup> 7000

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## 1 For Your Safety

- The use of the Dräger Pac 7000 instruments assumes a complete knowledge and adherence to the user's manual.
- In areas that are subject to explosion hazards, the Dräger Pac 7000 can only be used if these hazards are explicitly covered under the Ex Approvals which have been granted to the Dräger Pac 7000.
- Dräger Pac 7000 is not for use in oxygen-enriched atmospheres.
- Please check calibration before safety relevant use.
- The performing of calibration and bump testing shall be conducted according to local regulations. Do not inhale the test gas. Observe the hazard warnings of the relevant Safety Data Sheets.
- The gas opening is equipped with a dust and water filter. This filter protects the sensor against dust and water. Do not destroy the filter. Replace destroyed or clogged filter immediately (see "Changing dust and water filter" on page 6).

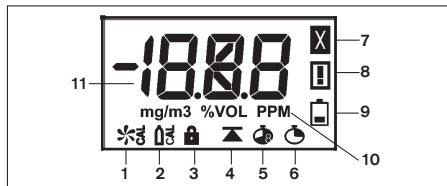
## 2 Intended Use

- Personal gas alarm in the workplace.

## 3 What is What?



- |                                     |                 |
|-------------------------------------|-----------------|
| 1 Alarm LED                         | 6 Gas Opening   |
| 2 Horn                              | 7 Screw         |
| 3 Concentration Display             | 8 Clip          |
| 4 [OK] Key On/Off/Alarm Acknowledge | 9 Label         |
| 5 [+] Key Off/Bump Test             | 10 IR Interface |



- |                              |                            |
|------------------------------|----------------------------|
| 1 Fresh Air Calibration Icon | 7 Error Icon               |
| 2 Span Calibration Icon      | 8 Bump Test Icon           |
| 3 Password Icon              | 9 Low Battery Icon         |
| 4 Peak Concentration Icon    | 10 Selected measuring unit |
| 5 TWA Icon                   | 11 Concentration display   |
| 6 STEL Icon                  |                            |

## 4 Operation

### 4.1 Turning the instrument on

- Press and hold [OK]. The display counts down until start-up: "3, 2, 1".
- All display segments are lit. Next, the LED, Alarm and Vibrating alarm are activated in sequence. Please check these before each use.
- The instrument will perform a self test.
- The software version and the gas name are displayed.
- The A1 and A2 alarm limits are displayed.
- After max. 20 seconds the gas concentration is displayed and the instrument is ready for use.
- For the O<sub>2</sub> sensor: after the first turning on of the instrument, a sensor warm up time of up to 15 minutes is needed. The gas value flashes until the warm up time has passed.

### 4.2 Before entering a working place

- After turning the instrument on, the actual measurement value will normally be shown in the display.
- Check for the notice icon [I]. When lit, it is recommended that you perform a bump test as described in chapter 4.3.
- Clip the instrument to clothing before working in or near potential gas hazards.
- Insure that the gas opening is not covered and that the instrument is also near to your breathing area.

### 4.3 Performing a "bump test" with gas

- Prepare a Dräger test gas cylinder with 0.5 l/min and a gas concentration higher than the alarm threshold to be tested.
- Connect Dräger Pac 7000 and the test gas cylinder to the calibration adapter or connect Dräger Pac 7000 to the Dräger Bump Test Station.
- To enter the bump test mode, press the [+] 3 times within 3 seconds. The instrument beeps twice, quickly. The notice icon [I] begins to flash.

**Remark: With Dräger Bump Test Station "Printer" the unit can be configured to automatically start the bump test without pressing any key.**

- To activate the bump test press [OK].
- Open the regulator valve to let test gas flow over the sensor.
- If gas concentration exceeds the alarm thresholds A1 or A2 the corresponding alarm will occur.
- To finish the bump test press [OK], the [I] icon is removed from the display and the instrument returns to the measuring mode.
- If during the bump test no alarm occurs within 1 minute, the instrument alarm mode is entered to indicate failure. The error icon [X] and the notice icon [I] are flashing; error code 240 is shown upon acknowledgement. "— — —" is shown instead of the measured value, and the [X] and [I] icons are lit. In this case the bump test can be repeated or the instrument can be calibrated.
- The result of the bump test (passed or failed) will be stored in the data logger (see chapter 6.1).
- The bump test can also be made by an automatic function. This function can be activated using the PC software Pac Vision or CC Vision (see chapter 6).
- If the bump test mode was entered by mistake, while the notice icon [I] was not lit and no gas flow over the sensor, press [+] to cancel the bump test mode and switch over to measurement screen.

### 4.4 During operation

- If the allowable measurement range is exceeded or a negative drift occurs, the following will appear in the display: "ΓΓΓ" (too high concentration) or "LLL" (negative drift).
- Alarms are indicated as described in chapter 7.
- Continuous function of the instrument is indicated by the life signal, which is a beep every 60 seconds, if configured (see chapter 11).
- For measurements according to EN 45544 (CO, H<sub>2</sub>S) or EN 50104 (O<sub>2</sub>) the Life Signal must be switched on.
- To illuminate the display press [+].

### 4.5 Show peak concentration, TWA and STEL

- During measuring mode press [OK]. The peak concentration and the peak concentration icon will be shown. After 10 seconds the display will return to the measuring screen, or if [OK] is pressed again the TWA concentration and the TWA icon will be shown. After 10 seconds the display will return to the measuring screen, or if [OK] is pressed again the STEL concentration and the STEL icon will be shown. After 10 seconds the display will return to the measuring screen, or if [OK] is pressed again the number of STEL periods and the STEL icon will be shown. After 10 seconds the display will return to the measuring screen.

### 4.6 Turning the instrument off

- Simultaneously hold both keys for approximately 2 seconds until "3" appears in the display. Continue to hold both keys until the countdown is finished. The alarm and LED will be activated momentarily.

## 5 Calibration

- Dräger Pac 7000 is equipped with a calibration function. The instrument will automatically return to the measuring screen if no key is pressed in the calibration menu for 1 minute (except in the span calibration menu which will wait for 10 minutes).
- Calibration should be performed by trained personnel if the bump test is failed or after specified calibration intervals (see chapter 11 and European standard EN 50073).

### 5.1 Enter the password

- To enter the calibration menu press the **[+]** 3 times within 3 seconds. The instrument beeps twice, quickly. The notice icon **[I]** begins to flash.
- Press **[+]** again. If a password has been set, three zeros "000" will appear on the display with the first zero flashing. The password is entered one digit at a time. Change the value of the flashing digit by pressing **[+]** and press **[OK]** to accept the value. The next digit will now be flashing. Repeat this process to select the next two values. After the last acceptance using the **[OK]** button the password is complete. Note: the default password is "001".
- If a correct password has been entered or no password has been set, the display shows the icon for fresh air calibration flashing.
- Press **[OK]** to enter the fresh air calibration function or press **[+]** to switch over to the span calibration function. After this the display shows the icon for span calibration flashing.
- Press **[OK]** to enter the span calibration function or press **[+]** again to switch over to the measurement mode.

### 5.2 Fresh air calibration

- To enter the fresh air calibration function press **[OK]** after entering the menu while the fresh air calibration icon flashes. The fresh air calibration icon stops flashing and the indicated value flashes.
- To finish the fresh air calibration press **[OK]**, the fresh air calibration icon is removed from the display and the instrument returns to the measuring mode.
- If the fresh air calibration failed a long single beep occurs. "— —" is shown instead of the measured value, and the **[X]** icon and the fresh air calibration icon are lit. In this case the fresh air calibration can be repeated or the instrument can be calibrated.

### 5.3 Calibration

#### 5.3.1 Automatically Calibration

- With Dräger Bump Test Station "Printer" the unit can be configured to automatically start a calibration after a failed bump test without pressing any key.

#### 5.3.2 PC-based Calibration

- For calibration connect Pac 7000 to a PC using the connecting cradle or the E-Cal System. Calibration can be done with installed software Pac Vision or CC Vision. A calibration "due date" can be set using the operation timer (in days).

#### 5.3.3 Calibration without PC

- Pac 7000 is also equipped with an onboard calibration function. Prepare the calibration cylinder, connect the cylinder to the calibration adapter, and connect the calibration adapter to the instrument.
- To enter the span calibration function press **[OK]** after entering the menu, while the span calibration icon flashes. Now the calibration icon stops flashing and the adjusted calibration concentration flashes.
- It is possible to use this adjusted calibration concentration or to change it to be in line with the concentration of the gas cylinder.
- To change the adjusted calibration concentration press **[+]**. The first digit flashes. Change the value of the flashing digit by pressing **[+]** and press **[OK]** to accept the value. The next digit will now be flashing. Repeat this process to select the next three values. After the last acceptance using the **[OK]** button the calibration concentration is complete.
- Open the regulator valve to let calibration gas flow over the sensor (flow: 0.5 l/min).
- Press **[OK]** to start the calibration. The concentration flashes. When the indicated value shows a stable concentration press **[OK]**.
- If the calibration is successful a short double beep occurs and the instrument returns to the measuring mode.
- If the calibration failed a long single beep occurs. "— —" is shown instead of the measured value, and the **[X]** icon and the span calibration icon are lit. In this case the calibration can be repeated.

### 5.4 Adjustment of the password

- For adjustment of the password connect Dräger Pac 7000 to a PC using the connecting cradle or the E-Cal System. The password can be adjusted with installed software Pac Vision or CC Vision. Note: If the password is set to "000", this means no password is set.

## 6 Maintenance and Configuration

- The device does not need any special maintenance.
- For individual configuration or individual calibration connect Dräger Pac 7000 to a PC using the connecting cradle or the E-Cal System. Configuration and calibration can be done with installed software Pac Vision or CC Vision. Strictly follow the instructions for use of the modules and software in use.

### 6.1 Data logger

- Dräger Pac 7000 is equipped with a data logger. The data logger stores events and the peak concentration measured during during a variable interval adjustable with Pac Vision or CC Vision. The data logger runs about 5 days in a 1 minute interval. If the memory of the data logger is filled the data logger overwrites the oldest stored data.

- For adjustment of the peak concentration to be stored or for download of the stored data connect Dräger Pac 7000 to a PC using the connecting cradle or the E-Cal System. The stored data can be downloaded with installed software Pac Vision or CC Vision.

### 6.2 Adjustable operation timer (in days)

- Dräger Pac 7000 is equipped with an adjustable operation timer. The operation timer can be used to set an individually operation period e. g. to adjust a "calibration due date", an "inspection due date", an "out of order date", a "usable life alarm" etc.
- To adjust the operation timer connect Dräger Pac 7000 to a PC using the connecting cradle or the E-Cal System. The adjustment can be done with installed software Pac Vision or CC Vision.

### 6.3 Usable life alarm / end of operation period

- A useable life alarm can be adjusted using the adjustable operation timer (see chapter 6.2).
- If an operation period is set a warning period begins before the end of the installed operation period.
- During this period the remaining life time flashes just after turning the instrument on, e. g. "30" / "d".
- This alarm occurs at 10 % of the set operation period or at least 30 days before end of the operation period.
- To acknowledge this message **[OK]** must be pressed. After that, the instrument can be used further.
- After the usable operation period has expired, the text "0" / "d" will alternate in the display and cannot be acknowledged. The instrument will not longer measure.

### 6.4 Measurement of % COHB


- Dräger Pac 7000 CO-version is equipped with a measuring mode to measure % HBCO in exhaled air. The exhaled CO provides a convenient and reliable concentration value to measure the carboxyhemoglobin (COHB) content of the blood.
- To activate this function connect Dräger Pac 7000 to a PC using the connecting cradle or the E-Cal System. The adjustment can be done with installed software Pac Vision or CC Vision.
- After activation of this function the display alternates between "HB" and a concentration. The concentration will be indicated in the unit of % COHB.
- For the measurement connect Dräger Pac 7000 to the calibration adapter and connect a mouth piece (Dräger order code: 68 05 703) to the calibration adapter.
- Blow into the mouth piece for approximately 20 seconds.
- Wait for the highest indication in the display.
- During calibration and bump test, the instrument reverts back to the regular ppm CO mode and returns to COHB mode once finished.
- There are no gas alarms and no TWA / STEL measurements available in COHB mode.

## 7 Alarms

### 7.1 Concentration Pre/Main Alarms

- The alarm will activate whenever the alarm thresholds A1 or A2 are exceeded.
- The instrument is equipped with a vibrating alarm. It vibrates in parallel to these alarms.
- During an A1, the LED will blink and the alarm will sound.
- During an A2, the LED and alarm tone will repeat in a double repeating pattern.
- The display will alternate between the measurement value and "A1" or "A2".
- When the TWA A1 alarm is activated, the TWA icon flashes in addition to the audible, optical and vibrating alarm.
- When the STEL A2 alarm is activated, the STEL icon flashes in addition to the audible, optical and vibrating alarm.
- The alarms may, according to the selected configuration, be acknowledged or turned off (see chapter 11). "Acknowledgeable": alarm tone and vibration can be acknowledged by pressing [OK].
- "Latching": The alarm will only deactivate when the concentration falls under the alarm threshold and then [OK] is pressed.
- If the alarm is not latching, the alarm will deactivate as soon as the concentration falls under the alarm threshold.

### 7.2 Battery pre / main alarms

- When the battery pre-alarm is activated, the audible alarm sounds and the LED blinks, and the "low battery" icon "  " flashes.
- To acknowledge the pre-alarm, push [OK].
- After the first battery pre-alarm, the battery will last for approx. 1 further week and the "low battery" icon stays lit.
- When the battery main alarm is activated, the audible alarm sounds in a repeating pattern of 2 repeating tones and the LED blinks in the same pattern.
- The battery main alarm is not acknowledgeable; the instrument will automatically turn off after approx. 10 seconds.
- In case of a very low battery, the internal voltage monitor could activate the LED's.

## 8 Battery

### 8.1 Changing the battery

- **Do not change the battery in explosion-hazard areas!**
- The instrument contains a replaceable lithium battery.
- The battery is part of the Ex approval.
- Only the following battery types shall be used:
  - Duracell 123 Photo, Lithium, 3 V
  - Duracell 123 Ultras, Lithium, 3 V
  - Panasonic CR123A, Lithium, 3 V
  - Energizer EL123A, Lithium, 3 V
  - Powerone CR123A, Lithium, 3 V
- Turn the instrument off.
- Unscrew the 4 screws from the back case.

- Open the front case and remove the depleted battery.
- Press and hold [OK] for approx. 3 seconds while battery is not installed.
- Insert the new battery according to specified polarity (+/-).
- Place front case back and fasten it by tightening the 4 screws of the back case.
- After changing the battery a sensor warm up time is needed (see chapter 11). The gas value flashes until the warm up time has passed.

### 8.2 Handling of exhausted batteries

- **Caution:**
- Never throw them into a fire!
- Never attempt to charge them!
- Never attempt to open them, danger of explosion!
- Dispose of exhausted batteries only as special waste in accordance with local regulations.
- Spent batteries may be returned to Dräger Safety for disposal.

## 9 Sensor

### 9.1 Changing the sensor

- **Do not change the sensor in explosion-hazard areas!**
- **Replace sensor when instrument can no longer be calibrated!**
- **Use only the DrägerSensor XXS of the same gas type!**
- Turn the instrument off.
- Unscrew the 4 screws from the back case.
- Open the front case and remove the battery.
- Remove the sensor.
- Insert the new sensor.
- Press and hold [OK] for approx. 3 seconds while battery is not installed.
- Insert the battery according to specified polarity (+/-).
- Place front case back and fasten it by tightening the 4 screws of the back case.
- After inserting the battery a sensor warm up time is needed (see chapter 11). The gas value flashes until the warm up time has passed.
- After changing the sensor and after the warm up time is finished the instrument must be calibrated (see chapter 5.3).

## 10 Instrument alarm

- The alarm and LED will be activated three times, periodically.
- The [X] icon is flashing; a 3 digit error code will be shown in the display.
- If an error appears in the display see chapter 10.1 and if necessary please contact Service of Dräger Safety.

## 10.1 Trouble shooting errors

Code	Cause	Remedies
100	Flash / EEPROM write failed	Contact Service
102	AD system defect	Contact Service
104	Flash check sum wrong	Contact Service
105	Broken or missing O <sub>2</sub> sensor	Replace O <sub>2</sub> sensor
106	Most recent settings restored	Recalibrate instrument
107	Self test failed	Contact Service
108	Data Logger download failed	Repeat operation
109	Configuration incomplete	Configure again
240	Bump test failed	Repeat operation or calibrate instrument

## 11 Technical Specifications

### 11.1 General

Environmental Conditions	
During operation	temperature see 11.3 and 11.4 700 to 1300 hPa 10 to 90 % relative humidity
Conditions for storage	0 to 40 °C 32 to 104 °F 30 to 80 % relative humidity
Battery life (typical at 25 °C)	24 hours of use per day, 1 minute alarm per day; >5,500 hours, O <sub>2</sub> : >2,700 hours
Intensity of alarm	typical 90 dBA at 30 cm / 1 ft.
Dimensions (without clip)	64 x 84 x 20 mm (battery compartment 25 mm) 2.5 x 3.3 x 0.8 (battery compartment 1 in.)
Weight	106 g / 3.8 oz.
Ingress protection	IP 65
Approvals	(see "Approvals" on page 159)

### 11.2 Standard Configuration (Factory Settings)

Vibration Alarm	yes
Bump Test Interval	off
Life Signal <sup>1)</sup>	off
Turning the instrument off	always allowed
Data Logger Interval	1 minute
Operation Timer	off
% COHB Mode	off

1) For measurements according to EN 45544 (CO, H<sub>2</sub>S) or EN 50104 (O<sub>2</sub>) the Life Signal must be switched on.

### 11.3 Sensor Specifications and Instrument Configuration

Principle of measurement is an electrochemical 3-electrode sensor. Oxygen (O<sub>2</sub>) cannot be measured in the presence of Helium (He)!

The Type-Examination-Certificate covers the measuring function for Oxygen enrichment and deficiency.

	CO	H <sub>2</sub> S	O <sub>2</sub>
Measuring Range	0 ... 1999 ppm	0 ... 100 ppm	2 ... 25 vol.-%
Certified range	3 to 500 ppm	1 to 100 ppm	2 to 25 vol. %
test gas concentration	20 to 999ppm	5 to 90ppm	10 to 25 vol. %
factory set calibration concentration	50 ppm	20 ppm	18 vol. %
Temperature range, operation	-20 ... 50 °C -4 ... 122°F	-20 ... 50 °C -4 ... 122°F	-20 ... 50 °C -4 ... 122°F
Alarm Threshold A1 <sup>2)</sup>	30 ppm	10 ppm	19 vol.-% <sup>1)</sup>
acknowledgeable	Yes	Yes	No
latching	No	No	Yes
Alarm Threshold A2 <sup>2)</sup>	60 ppm	20 ppm	23 vol.-%
acknowledgeable	No	No	No
latching	Yes	Yes	Yes
TWA Threshold A1 <sup>2)</sup>	30 ppm	10 ppm	No
STEL Threshold A2 <sup>2)</sup>	60 ppm	10 ppm	No
No. of STEL periods	4	4	No
Average STEL duration	15 minutes	15 minutes	No
Warm up time (switch on)	20 minutes	20 minutes	20 minutes
Warm up time (sensor or battery change)	15 minutes	15 minutes	15 minutes
Reproducibility			
Zero point:	≤ ± 2 ppm	≤ ± 0.5 ppm	≤ ± 0.2 vol.-%
Sensitivity: [% of measured value]	≤ ± 2	≤ ± 2	≤ ± 1
Drift (20 °C)			
Zero point:	≤ ± 2 ppm/a	≤ ± 1 ppm/a	≤ ± 0.5 vol.-%/a
Sensitivity: [% of meas. value/month]	≤ ± 1	≤ ± 1	≤ ± 1
Response times t <sub>0...50</sub> /t <sub>0...90</sub>	7/11 seconds	7/13 seconds	12/20 seconds
Zero error (EN45544)	6 ppm	2 ppm	- - -
Standards, performance tests for toxic gases and oxygen deficiency and enrichment Type Certificate PFG 07 G 003	EN 45544 EN 50271	EN 45544 EN 50271	EN 50104 EN 50271
Sensor Order Number <sup>3)</sup>	6810882	6810883	6810881
Sensor Data Sheet Order Number	9023816	9023819	9023820

1) For O<sub>2</sub> A1 is the lower alarm threshold, used to indicate Oxygen deficiency.

2) Please be aware of special settings by customer requirements.

3) Please be aware of limited lifetime of sensors. Excessive storage reduces operating time of sensors.  
Temperature range of storage is 0 ... 35 °C (32 ... 95°F)

Cross sensitivity factors <sup>4)</sup>	CO	H <sub>2</sub> S	O <sub>2</sub>
Acetylene	≤ 2	negligible	≤ -0.5
Ammonia	negligible	negligible	negligible
Carbon dioxide	negligible	negligible	≤ -0.04
Carbon monoxide		negligible	≤ 0.2
Chlorine	≤ 0.05	≤ -0.2	negligible
Ethane	no value	no value	≤ -0.2
Ethanol	negligible	negligible	negligible
Ethene	no value	no value	≤ -1
Hydrogen	≤ 0.35	negligible	≤ -1.5
Hydrogen chloride	negligible	negligible	negligible
Hydrogen cyanide	negligible	negligible	negligible
Hydrogen sulphide	≤ 0.03		negligible
Methane	negligible	negligible	negligible
Nitrogen dioxide	≤ 0.05	≤ -0.25	negligible
Nitrogen monoxide	≤ 0.2	≤ 0.03	negligible
Propane	negligible	negligible	negligible
Sulphur dioxide	≤ 0.04	≤ 0.1	negligible

4) Multiply cross sensitivity factor by gas concentration to get reading.

#### 11.4 Sensor Specifications and Instrument Settings for other Gases

	NH <sub>3</sub>	SO <sub>2</sub>	PH <sub>3</sub>	HCN	NO <sub>2</sub>	CO <sub>2</sub>	Cl <sub>2</sub>	H <sub>2</sub> S LC	OV <sup>3)</sup>	OVA <sup>3)</sup>
Measuring Range	0 ... 300 ppm	0 ... 100 ppm	0 ... 20 ppm	0 ... 50 ppm	0 ... 50 ppm	0 ... 5 vol.-%	0 ... 20 ppm	0 ... 100 ppm	0 ... 200 ppm	0 ... 200 ppm
Calibration concentration	50 ppm in N <sub>2</sub>	10 ppm in N <sub>2</sub>	0.5 ppm in N <sub>2</sub>	10 ppm in N <sub>2</sub>	10 ppm in N <sub>2</sub>	2.5 vol.-% in air	5 ppm in N <sub>2</sub>	20 ppm in N <sub>2</sub>	20 ppm in N <sub>2</sub>	20 ppm in N <sub>2</sub>
Temperature range, operation	-30 ... 50 °C -22 ... 122°F	-30 ... 50 °C -22 ... 122°F	-20 ... 50 °C -4 ... 122°F	-20 ... 50 °C -4 ... 122°F	-30 ... 50 °C -22 ... 122°F	-20 ... 40 °C -4 ... 104°F	-30 ... 50 °C -22 ... 122°F	-40 ... 50 °C -40 ... 122°F	-20 ... 50 °C -4 ... 122°F	-20 ... 50 °C -4 ... 122°F
Alarm Threshold A1 <sup>2)</sup>	50 ppm	1 ppm	0.1 ppm	10 ppm	5 ppm	0.5 vol.-%	0.5 ppm	1.6 ppm	10 ppm	10 ppm
acknowledgeable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
latching	No	No	No	No	No	No	No	No	No	No
Alarm Threshold A2 <sup>2)</sup>	100 ppm	2 ppm	0.2 ppm	20 ppm	10 ppm	3 vol.-%	1 ppm	3.2 ppm	20 ppm	20 ppm
acknowledgeable	No	No	No	No	No	No	No	No	No	No
latching	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TWA Threshold A1 <sup>2)</sup>	50 ppm	1 ppm	0.1 ppm	10 ppm	5 ppm	0.5 vol.-%	0.5 ppm	5 ppm	No	No
STEL Threshold A2 <sup>2)</sup>	50 ppm	1 ppm	0.1 ppm	40 ppm	5 ppm	2 vol.-%	0.5 ppm	5 ppm	No	No
No. of STEL periods	4	4	4	4	4	4	4	4	No	No
Average STEL duration	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes	No	No
Warm up time	2.5 hours	15 minutes	15 minutes	35 minutes	15 minutes	12 hours	40 minutes	15 minutes	18 hours	18 hours
Reproducibility										
Zero point:	± 3 ppm	± 0.2 ppm	± 0.02 ppm	± 0.5 ppm	± 0.5 ppm	± 0.2 vol.-%	± 0.05 ppm	± 0.1 ppm	± 3 ppm	± 5 ppm
Sensitivity: [% of measured value]	± 3	± 2	± 2	± 5	± 2	± 20	± 2	± 5	± 5	± 20
Drift (20 °C)										
Zero point:	± 5 ppm/a	± 1 ppm/a	± 0.05 ppm/a	± 2 ppm/a	± 1 ppm/a	± 0.2 vol.-%/a	± 0.2 ppm/a	± 0.2 ppm/a	± 5 ppm/a	± 5 ppm/a
Sensitivity: [% of meas. value/month]	± 2	± 2	± 2	± 5	± 2	± 15	± 2	± 5	± 2	± 3
Sensor Order Number 1)	68 10 888	68 10 885	68 10 886	68 10 887	68 10 884	68 10 889	68 10 890	68 11 525	68 11 530	68 11 535
Sensor Data Sheet Order Number	90 23 922	90 23 919	90 23 920	90 23 921	90 23 918	90 23 923	90 23 924	90 23 970	90 23 994	90 23 995

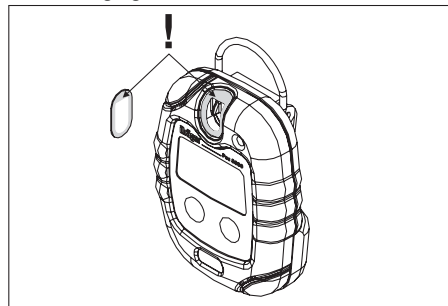
Please be aware of possible sensor cross sensitivities (see Sensor Data Sheet).

#### 12 Accessories

Description	Order-code
Connecting Cradle, complete with USB cable and Pac Vision software	83 18 587
Calibration Adapter	83 18 588
Lithium battery	45 43 808
Dust and water filter	45 43 836
Leather carrying case	45 43 822
Bump Test Station, complete with test gas cylinder 58 L (gas type by customer request)	83 18 586
E-Cal instrument module for connection of 4 Dräger Pac 1000 to 7000 to a E-Cal Master Station or to Module Adapter	83 18 589
Dräger Bump Test Station "Printer" complete with test gas cylinder 58 L, including Auto Detect Function for Pac 7000 (gas type by customer request)	83 21 008

- 1) Please be aware of limited lifetime of sensors. Excessive storage reduces operating time of sensors. Temperature range of storage is 0 to 35 °C (32 to 95°F)
- 2) Please be aware of special settings by customer requirements.
- 3) For ethylene oxide only.

#### 13 Changing dust and water filter



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