Dräger



# Dräger Polytron 5000

## Instructions for Use

⚠️ **WARNING**

Strictly follow the Instructions for Use.
The user must fully understand and strictly observe the instructions. Use the product only for the purposes specified in the Intended use section of this document.

Dräger. Technology for Life®

# Content

# 1 For your safety

## 1.1 General safety statements

- Before using this instrument, carefully read the Instructions for Use (IfU).

- Strictly follow the Instructions for Use. The user must fully understand and strictly observe the instructions. Use the instrument only for purposes and under the conditions specified in this document.

- Comply with all local and national laws, rules and regulations associated with this instrument.

- Only trained and competent personnel are permitted to inspect, repair and service the product as detailed in these Instructions for Use. Further maintenance work that is not detailed in these Instructions for Use must only be carried out by Dräger or personnel qualified by Dräger. Dräger recommends a Dräger service contract for all maintenance activities.

- Use only genuine Dräger spare parts and accessories, otherwise the proper functioning of the instrument may be impaired.

- The flameproof/explosion proof joints are not in accordance with the relevant minimum or maximum values of EN/IEC 6009-1. The joints are not intended to be re-worked by the user.

- Do not dispose of the Instructions for Use. Ensure that they are retained and appropriately used by the instrument user.

- The measuring function of the gas detection transmitter for explosion protection, according to Annex II, clauses 1.5.5, 1.5.6 and 1.5.7 of Directive 94/9/EC is currently not covered.

- Substitution of components may impair Intrinsic Safety. Only if intrinsic safety is involved

**Safe connection of electrical devices.**

- Never connect this instrument to another electrical device before consulting the manufacturer or an expert.

**Using the product in areas subject to explosion hazards:**

- Instruments or components for use in explosion-hazard areas which have been tested and approved according to national, European or international Explosion Protection Regulations may only be used under the conditions specified in the approval and with consideration of the relevant legal regulations.

- The instruments or components may not be modified in any manner. The use of faulty or incomplete parts is forbidden. The appropriate regulations must be observed at all times when carrying out repairs on these instruments or components.

## 1.2 Definition of alert icons

To reduce the risk of ignition of a flammable or explosive atmosphere, strictly adhere to the following Caution and Warning statements.

The following alert icons are used in this document to provide and highlight areas of the associated text that require a greater awareness by the user. A definition of the meaning of each icon is as follows:

**DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION**

Indicates a potentially hazardous situation which, if not avoided, could result in physical injury, or damage to the product or environment.
It may also be used to alert against unsafe practices.

**NOTICE**

Indicates additional information on how to use the instrument.

# 2 Description

## 2.1 Product overview

The instrument is powered by 16 to 30 VDC. Gas concentrations, error messages, and software menu choices are displayed on a 3 digit LCD display.

Access to the software is obtained by tapping the magnetic wand (part number 4544101) on the glass viewport at the appropriate indicators. In this way, the instrument can be configured, calibrated and maintained non-intrusively, so declassification of the   area is not necessary for these procedures.

The Polytron 5000 is housed in either an epoxy powder-coated aluminum or stainless steel 316 enclosure with 3/4" NPT threaded ports located at the 3 and 9 o'clock positions.
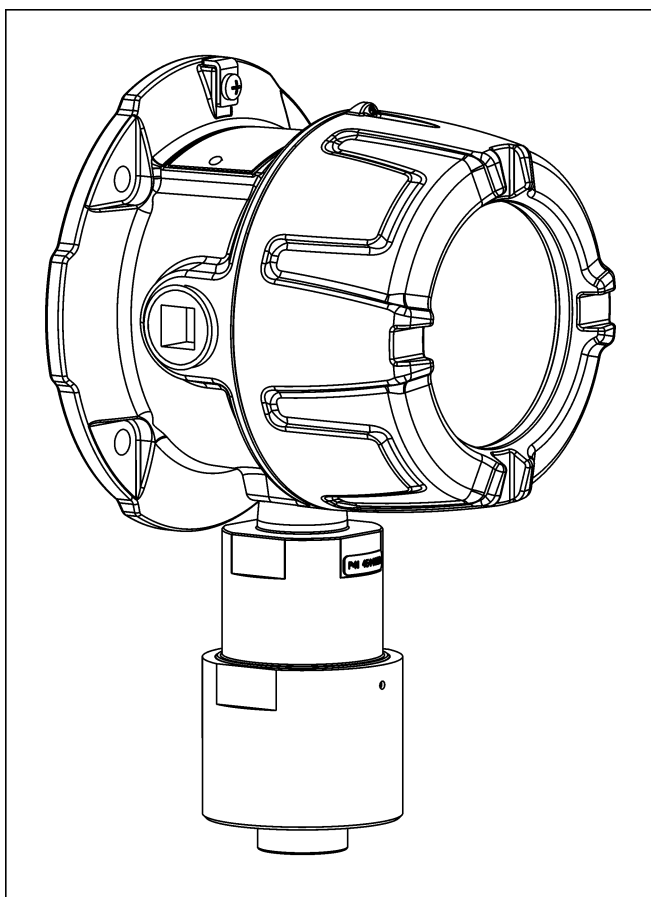


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## 2.2 Intended use

The Dräger Polytron 5000 is a transmitter for the detection of carbon monoxide, hydrogen sulphide, oxygen, hydrogen, ammonia, chlorine, sulfur dioxide and nitrogen dioxide in ambient air. The instrument is designed to be installed in permanent locations, and depending on the version, it is approved for use in certain specified hazardous, classified areas (see Section 6.1 on Page 12). Polytron 5000 gas detectors are available in two versions, those used for hazardous areas and others for general purpose only (see Section 6.1 on Page 12).

Caution: Not tested in oxygen enriched atmospheres (>21 % $O_2$). High off-scale readings may indicate an explosive concentration.

**Hazardous area units**
Polytron 5000, explosion-proof instrument for the monitoring of CO, $H_2S$ and $O_2$.

**Non-hazardous area units**
Polytron 5000, general purpose instrument for the monitoring of $NH_3$, Cl2, $SO_2$, $NO_2$, NO, EO and $H_2O_2$ (see Section 6 on Page 12, and Section 8 on Page 13 for details).

## 2.3 Intended operating area and operating conditions

**Hazardous areas classified by zones:**
The device is intended to be used only in hazardous areas classified zone 1 or zone 2, within a temperature range as marked on the device, where gases of explosion groups IIA, IIB or IIC and temperature class T4 or T6 (depending on the maximum ambient temperature) or dusts of groups IIIA, IIIB or IIIC may be present.

**Hazardous areas classified by divisions:**
The device is intended to be used only in hazardous areas Class I&II, Div. 1 or Div. 2, within a temperature range as marked on the device, where gases or dusts of groups A, B, C, D or E, F, G and temperature class T4 or T6 (depending on the maximum ambient temperature) may be present.

# 3 Operation

## 3.1 Principle of operation

Dräger electrochemical sensors are electrochemical measuring transducers for measuring the partial pressure of gases under atmospheric conditions. The ambient air being monitored diffuses through a membrane into the liquid electrolyte in the sensor. The electrolyte contains a measuring electrode, a counter-electrode and a reference electrode. An electronic potentiostatic circuit ensures a constant electrical voltage between the measuring electrode and reference electrode. Voltage, electrolyte and electrode material are selected to suit the gas being monitored so that it is transformed electrochemically on the measuring electrode and a current flows through the sensor. This current is proportional to the gas concentration.

At the same time, oxygen from the ambient air reacts at the counter-electrode electrochemically. The current flowing through the sensor is amplified electronically, digitized and corrected for several parameters (e.g. the ambient temperature). The resulting measured value is given as an analog, 4-20 mA signal.

**Design principle**

1 Meter
2 Potentiostat
3 Direct current supply
4 Measured gas
5 Membrane
6 Measuring electrode
7 Electrolyte
8 Reference electrode
9 Counter electrode
10 Temperature sensor
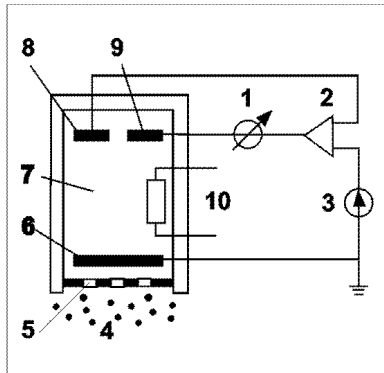
## 3.2 Installation

● The flameproof/explosion proof enclosure provides three ¾" NPT openings, which can be used for field wiring, direct attachment of a sensor or wiring of a remote sensor.

● Secondary circuit intended to be supplied from an isolating source (N/A for relay circuits).

● The optional increased safety terminal box provides four 20 mm openings, which can be used for field wiring or wiring of a remote sensor. The permissible cable diameter range is 7 to 12 mm.

● When installed at locations exceeding ambient temperatures of 55 °C, use only appropriate wiring, specified for at least 25 °C above the maximum ambient temperature.

1. Strip wire insulation by 5-7 mm.
2. Connect the wires as indicated in wiring figure (also showing grounding conductor terminal).

Mount the instrument at an appropriate height for the gas to be detected, taking into account the density of the gas, air flow patterns in the room, personnel, and other environmental considerations. For most toxic gases, where personnel protection is the main goal, mounting the Polytron 5000 at an average breathing height of about 5 feet (1.5 meter) is common practice. Responsibility for correct placement of the Polytron 5000 rests exclusively with the end user; if in doubt about placement, consult with Dräger application engineers.

Polytron 5000 is a two-wire instrument powered by 16 to 30 V DC. Wiring terminals are located on the bottom of the enclosure; pull out the bezel by grasping the notches on either side of the display with your fingers and pulling up.
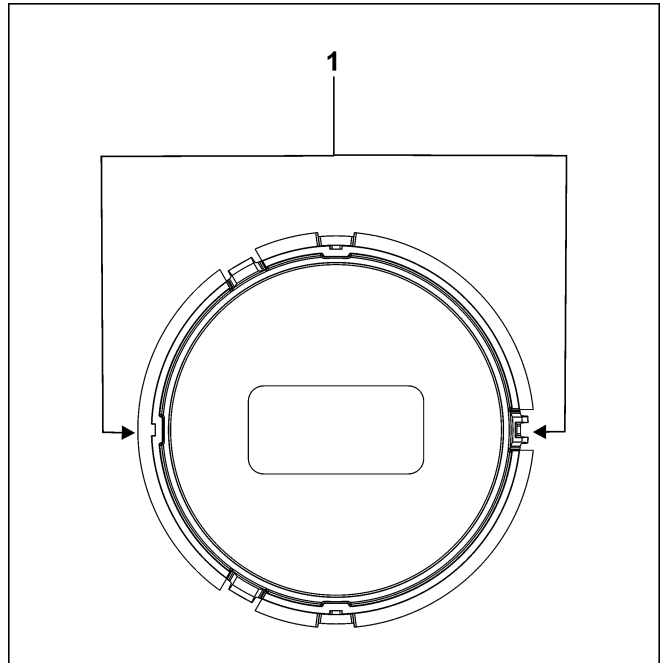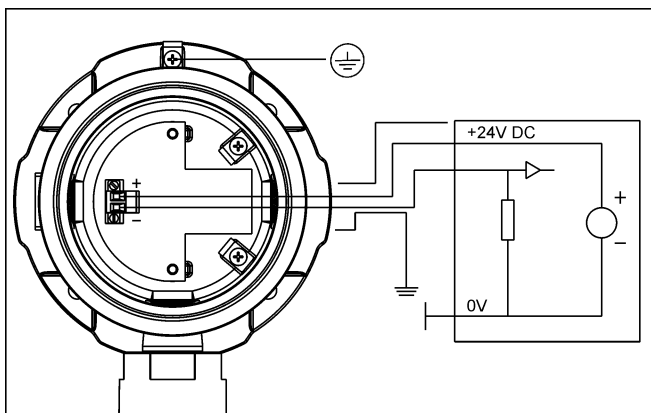
4544285b

1 Grasp notches with fingers and pull up.

● Connect the wires as shown below.

**Secondary circuit intended to be supplied from an isolating source.**



4544285c

**Tightening torque**

| Part | TQ Lb. In. | TQ Nm |
|---|---|---|
| lid | min. 266 | min. 30 |
| sensors | min. 266 | min. 30 |
| plugs | min. 266 | min. 30 |
| conduit hubs | min. 443 | min. 50 |

**Tightening torque and wire size for field wiring terminals**

| Electronic | | |
|---|---|---|
| TQ Lb. In. | Wire Size AWG | Wire Size mm$^2$ |
| All field wiring terminals 4.4 - 7.0 (0.5 - 0.8 Nm) | 24 - 12 | 0.2 - 2.5 |

● In case of optional increased safety terminal box, securely screw the transmitter onto the e-box using 4 screws with a tightening torque of 8 Nm.

### 3.3 Installing the sensor

The Polytron 5000 sensor connector is keyed and can only be installed one way. Use only DrägerSensors in this instrument. To install the sensor, see the following figure for details:
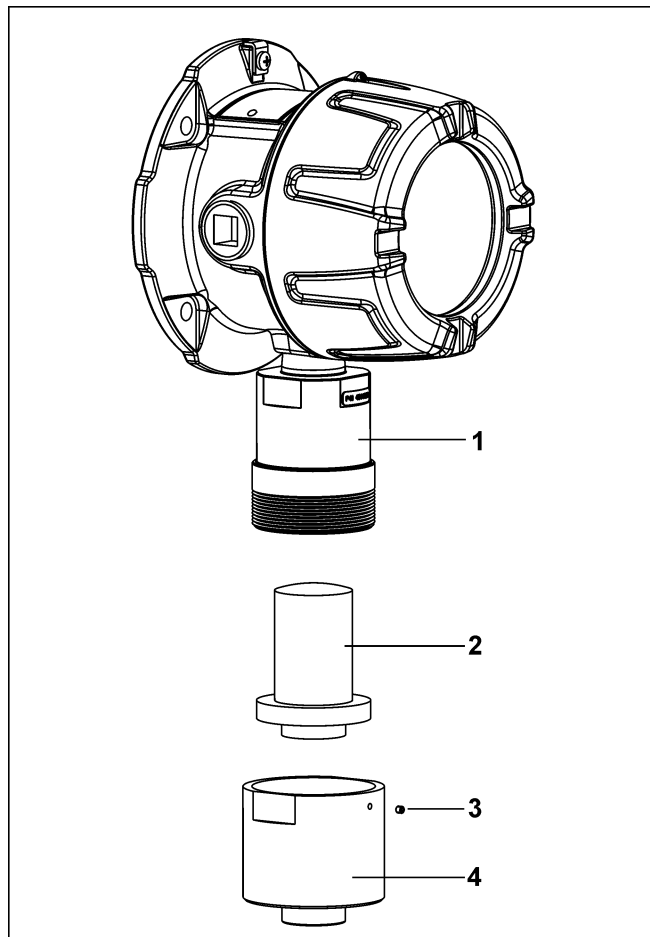


4544285d

1 Sensor housing
2 Sensor
3 Set screw
4 Sensor cover

1. Loosen the set screw in the stainless steel sensor cover.
2. Unscrew the stainless steel sensor cover at the end of the sensor housing.
3. Insert the ribbon cable connector into the socket in the DrägerSensor[1].
4. Push the DrägerSensor into the sensor housing.
5. Screw the stainless steel sensor cover back on.
6. Tighten the set screw to secure the sensor cover.
7. Allow the sensor to warm-up according to the sensor data sheets.

● Always test a newly-installed sensor with target gas to verify proper operation.

● When installed at locations exceeding ambient temperatures of 55 °C, use only appropriate wiring specified for at least 25 °C above the maximum ambient temperature.

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1) DrägerSensor[®] is a registered trademark from Dräger

## 3.4 Replacing the sensor

1. Loosen the set screw in the sensor cover.
2. Unscrew the stainless steel sensor cover at the end of the sensor housing.
3. Pull the ribbon cable out of the sensor connector and remove the old sensor.
4. Insert the ribbon cable connector into the socket of the replacement DrägerSensor.
5. Push the DrägerSensor into the sensor housing.
6. Screw the stainless steel sensor cover back on.
7. Tighten the set screw to secure the sensor cover.
8. Always test a newly-installed sensor with target gas to verify proper operation.

## 3.5 Menu

In the standard operating mode, the gas concentration of the target gas will be displayed. To access the software menu, tap the magnetic wand once against the glass viewport above the Down arrow. The display shows the first menu item, Zero Adj. The displays flashes '-0-', 'Adj', and then shows the target gas concentration.
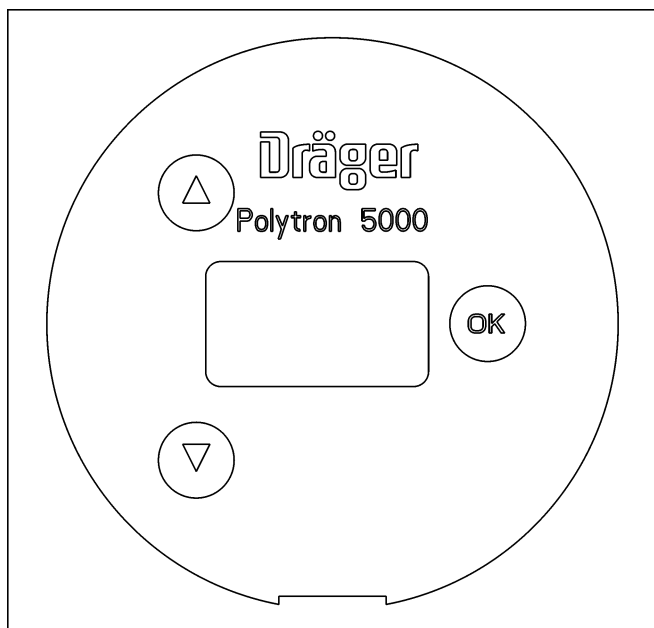


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### 3.5.1 Menu navigation

Tap the magnetic wand over the Up and Down arrows to scroll through the menu selections. If the magnetic wand is held over the switch for > 0.5 second, this will be considered multiple taps and the menu will scroll. When you reach the last item Password Adj, the menu will bottom-out, and you will have to use the Up arrow to scroll back up through the menu. The active menu item as well as its current value or status will flash on the display as it scrolls.

### 3.5.2 Changing parameter values/status

To enter a new value, or change a status, tap **OK** with the magnetic wand when the desired menu item is displayed. The current value or status will flash to indicate a change to data entry mode. The Up and Down arrows allow you to adjust the value of a numerical parameter or to toggle between preset choices. Once the display shows the desired value or choice, tap **OK** to validate the new parameter. This will take you back to the menu, where you can scroll to another menu item, if desired.

### 3.5.3 Exiting the Menu

To get back into the standard measurement mode, just scroll to the gas concentration menu item at the top of the menu. The actual gas concentration will be displayed.

## 3.6 Menu items

### 3.6.1 Sensor lock

Upon power up, the Polytron 5000 checks to see if the correct sensor is installed in order to prevent accidental installation of the wrong sensor type. If the correct sensor type is installed, the software goes directly to measurement mode, displaying the gas concentration (see Section 3.6.2 on Page 9).

If the installed sensor differs from the sensor installed previously, the message '**sns**', '**loc**', '**on**' (sensor lock on) will flash. You then have two choices: install a sensor of the correct type, or verify that you are purposely changing to a different sensor.

To verify the switch to a different sensor, hold the magnetic wand over **OK**. The flashing message will change to '**sns**', '**loc**', '**5**', then to '**sns**', '**loc**', '**4**', counting down from 5 to 1. You must hold the magnetic wand on **OK** during the entire countdown. If you remove the magnet at any time during the countdown, '**sns**', '**loc**', '**on**' will begin flashing again. After counting down to '**sns**', '**loc**', '**1**', the instrument will switch to the measurement mode, accepting the new sensor type.
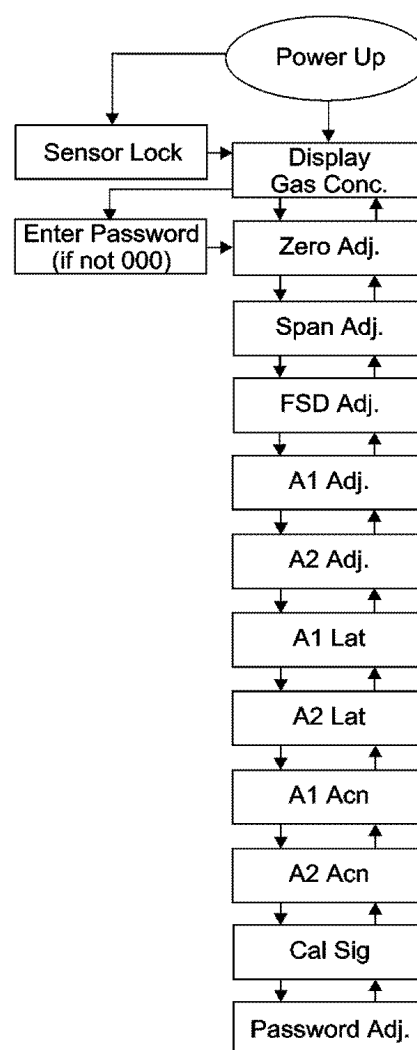
### 3.6.2 Gas conc

Displays the current value of the concentration of the target gas in ppm. This field is read-only, and cannot be modified by the operator.

### 3.6.3 Password

The use of a password is optional with the Polytron 5000. A password consists of a 3-digit number from 000 to 999; a value of 000 disables password protection and allows anyone to access the software interface. The instrument is delivered with the password set to 000.

If a password has been set, it must be entered to gain access to the software menu. Tap the magnetic wand over the Down arrow until the '**PAS**' menu item is displayed. The 3-digit LCD will then show '**000**', with the first zero on the left blinking. Use the Up and Down arrows to increment or decrement this digit, then tap **OK**. The second (middle) digit will blink, and the correct value should be set using the Up and Down arrows as before. Repeat the process for the third digit. Tap **OK** when the full password is displayed. If the displayed value matches the set password, you will gain access to the rest of the menu. If an incorrect password is entered, the instrument will return to the measurement mode.

### 3.6.4 Password adj

Use the Down arrow to scroll to the last menu item, Password Adjust. The display will show the message '**PAS**', '**ADJ**', '**000**'. If a password other than 000 has already been entered, that number will appear in place of '**000**'.

Tapping the magnetic wand over **OK** causes the 3-digit display to flash. Tap the Up or Down arrows to scroll the value to the desired new password. The display will stop scrolling at a maximum value of 999 or a minimum of 000; it will not roll over. Tap **OK** when the desired password is displayed to accept this as the new password. Once a password is set, you will have to enter it to gain access to the menu.

### 3.6.5 Zero adj

Allows you to adjust the zero reference point of the sensor when no target gas is present, such as during calibration (see Section 4.1 on Page 10).

> **i** **NOTICE**
>
> Zero Adjust is not active when an oxygen sensor is installed.

### 3.6.6 Span adj

Allows you to adjust the displayed gas concentration to match the known concentration of an applied calibration gas. For example, if a 100 ppm calibration gas is applied to the sensor, the Span Adj value should be adjusted to 100 once the sensor reading has stabilized (see Section 4.1 on Page 10).

### 3.6.7 FSD adj

Permits adjustment of the Full Scale Deflection, or range, of the instrument. It establishes the upper limit value of the 4-20 mA output of the sensor. For example, if the FSD is set to 100 ppm, then 0 ppm of the target gas will produce a 4 mA output, while 100 ppm will produce a 20 mA signal.

### 3.6.8 A1 adj

This menu item is not active for the Polytron 5000.

### 3.6.9 A2 adj

This menu item is not active for the Polytron 5000.

### 3.6.10 A1 lat

This menu item is not active for the Polytron 5000.

### 3.6.11 A2 lat

This menu item is not active for the Polytron 5000.

### 3.6.12 A1 acn

This menu item is not active for the Polytron 5000.

### 3.6.13 A2 acn

This menu item is not active for the Polytron 5000.

### 3.6.14 Cal sig

Calibration signal is the signal that is transmitted by the 4-20 mA output anytime you access the software menu. It is user-selectable. The two possibilities are:

- a steady 3 mA signal
- an oscillating 3-5 mA signal with a frequency of 1 Hz

The default value is a steady 3 mA signal.

## 3.7 Output and display variations

The following table shows the status of the 4-20 mA output, and the LCD display for various conditions.

| Condition | Analog Output | LCD Display |
|---|---|---|
| warming-up | actual signal | actual signal |
| after warm-up | actual signal | actual signal |
| after power outage | actual signal[1] | actual signal |
| new sensor installed | actual signal | actual signal |
| sensor removed | fault | "pls con snr" |
| bad/unsupported sensor | fault | "snr err" |
| hardware fault | fault | "flt" |
| microprocessor lock-up | fault | frozen display |
| in menu | maintenance signal | menu function |
| in cal modes | maintenance signal | cal function displays |

1) latest calibration data is restored upon power-up

# 4 Maintenance

Prior to calibration, each sensor must be allowed to warm up for the length of time specified in the sensor data sheet. During this time the sensor is capable of detecting the target gas, but its performance will deviate from specifications. Please see sensor data sheet for details.

## 4.1 Calibration procedure for toxic gases

For oxygen sensor see Section 4.2 on Page 11.
Calibration of this instrument must be performed at regular intervals as detailed in the sensor data sheet.
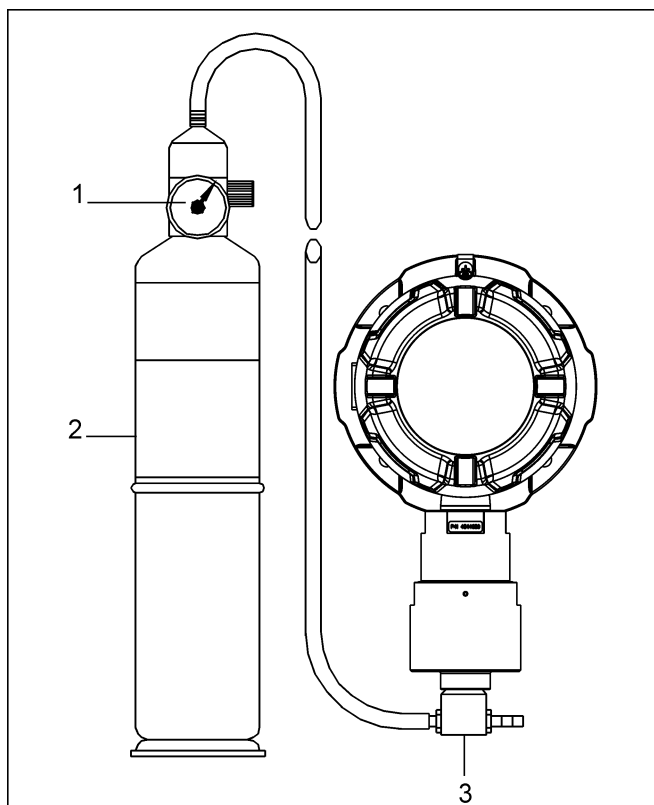


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1 Regulator
2 Calibration gas cylinder
3 Calibration adapter

### 4.1.1 Zero calibration

1. Attach the pressure regulator to the nitrogen ($N_2$) or Zero Air calibration gas cylinder.
2. Fit the calibration adapter tightly to the end of the sensor.
3. Turn the gas on.

> **i NOTICE**
>
> Allow the gas to flow for at least three minutes before proceeding.

4. Scroll through software menu to Zero Adj and tap **OK**. The current zero value will be displayed.
5. Wait for the zero to stabilize.

6. Trim the stabilized value to zero on the display using the Up and Down arrows.
7. Accept the value by tapping **OK** with the magnetic wand.
8. Turn off the gas flow and remove the calibration adapter from the sensor

> **i NOTICE**
>
> Ambient air can be used to zero the sensor instead of nitrogen or Zero Air if the area is known to be free of the target gas or any gas to which the sensor may be cross-sensitive (as listed on the sensor data sheet). In this case, no cylinder or calibration adapter is needed for the zero calibration.

### 4.1.2 Span calibration

1. Attach the pressure regulator to the calibration gas cylinder.
2. Fit the calibration adapter tightly to the end of the sensor.
3. Turn the gas flow on.

> **i NOTICE**
>
> Allow the gas to flow for at least three minutes before proceeding.

4. Scroll through software menu to Span Adj and tap **OK**. The span value will be displayed.
5. Wait for the span value to stabilize.
6. Trim the stabilized value to the calibration gas concentration using the Up and Down arrows.
7. Accept the value by tapping **OK** with the magnetic wand.
8. Turn off the gas flow and remove the calibration adapter from the sensor.

## 4.2 Calibration procedure for oxygen

### 4.2.1 Zero calibration

Zero calibration is not required for the oxygen version of the Polytron 5000.

### 4.2.2 Span calibration

- The span calibration of an oxygen sensor requires oxygen calibration gas or ambient air. Normally a cylinder containing 20.9 % $O_2$ is used to match the atmospheric concentration.

1. Fit the calibration adapter tightly to the end of the sensor if calibrating with a cylinder containing oxygen. Alternatively, if you want to calibrate the span using ambient air, leave the adapter off and skip the next two steps.
2. Attach the pressure regulator to the calibration gas cylinder containing 20.9 % $O_2$.
3. Turn the gas flow on.

**i** **NOTICE**

Allow the gas to flow for at least three minutes before proceeding.

4. Scroll through software menu to Span Adj.
5. Wait for the signal to stabilize.
6. Trim the stabilized value to the calibration gas concentration (normally 20.9 %) using the Up and Down arrows.
7. Accept the value by tapping **OK** with the magnetic wand.
8. Turn off the gas flow and remove the calibration adapter from the sensor.

## 4.3 Error messages

| Error Code | Condition | Solution |
|---|---|---|
| pls con snsr | no sensor is connected | connect sensor |
| | sensor connection is bad | check to ensure sensor is seated in connector |
| snr err | unsupported sensor is connected or sensor EEPROM data is corrupted | install supported sensor |
| flt | hardware fault | replace electronics |
| AFE err | wrong software version installed in analog front end (AFE) | install most recent AFE software |
| | defective AFE | replace electronics |
| AFE out | AFE microcontroller is out of its socket or not installed | check microcontroller |
| | defective AFE | replace electronics |

## 5 Disposal of electrical and electronic equipment

EC-wide regulations for the disposal of electrical and electronic equipment, which have been defined in the EU Directive 2002/96/EC and in national laws, have been effective since August 2005 and apply to this device. Common household appliances can be disposed of using special collecting and recycling facilities. However, as this device has not been registered for household usage, it must not be disposed of through these means. The device can be returned to your national Dräger Sales Organization for disposal. Please do not hesitate to contact Dräger if you have any further questions on this issue.

# 6 Technical data

## 6.1 Approvals



See printout of approval label.

## 6.2 Signal transmission to central control unit

| Analog | Transmission by 2-core shielded cable |
|---|---|
| Measurement current | 4 to 20 mA |
| Transmitter fault | <2 mA |
| Maintenance signal | 4 ± 1 mA, 1 Hz modulation or steady 3 mA signal (user selectable) |

## 6.3 Voltage of power supply

| Operating voltage | 16 to 30 VDC |
|---|---|
| Operating current | 2.0 to 21 mA @ 24 VDC |
| Maximum input current | 21 mA @ 24 VDC |
| Connector accepts 24 to 12 AWG wire (0.2 to 2.5 mm$^2$) | |

## 6.4 Physical specifications

| Enclosure | NEMA 4x IP 65, 66, 67 |
|---|---|
| Size (approx.) | L x W x D, approx. 9.5" x 5.8" x 5.1" (240 x 150 x 130 mm) |
| Weight (approx.) | **aluminum version:** 5.9 lbs (2.7 kg) **stainless steel version:** 9.7 lbs (4.4 kg) |

## 6.5 Environmental parameters

| Temperature | –40 to +150 °F,  (–40 to +65 °C) |
|---|---|
| Pressure | 20.7 to 38.4 in. of Hg (700 to 1300 mbar) |
| Humidity | 5 to 95 %RH, non-condensing |
| Maximum Air Velocity | ≤ 19.5 ft/s (≤ 6 m/s) |

## 6.6 Ambient influences

See sensor data sheets.

# 7 Default values

| Polytron 5000 | FSD (Full Scale Deflection, user adjustable) |
|---|---|
| CO | 50 / 100 / 200 / 300 / 500 ppm |
| $H_2S$ zero-bias | 10 / 20 / 50 / 100 ppm |
| $H_2S$ LC | 10 / 20 / 50 / 100 ppm |
| $H_2S$ HC | 100 / 200 / 300 / 500 ppm |
| $O_2$ | 25 vol% |
| $NH_3$ LC [1] | 50 / 100 ppm |
| $NH_3$ HC [1] | 300 / 500 ppm |
| $Cl_2$ [1] | 5 / 10 / 20 / 50 ppm |
| $SO_2$ [1] | 5 / 10 / 20 / 50 / 100 ppm |
| NO [2] | 50 / 100 ppm |
| $NO_2$ [1] | 5 / 10 / 20 / 100 ppm |
| $H_2$ | 500 ppm |
| $H_2O_2$ LC [1] | 5 / 10 / 20 / 50 / 100 ppm |
| EO [2] | 20 / 50 / 100 ppm |

Resolution: if FSD > 50 the resolution is 1

if FSD ≤ 50 the resolution is 0.1

1) Only to be used with Polytron 5000 General Purpose part number 4544165.

2) Notice: Gases which react with moisture will not repeatedly pass through the wire mesh, if the transmitter is installed in a non-climate controlled environment. If it can be ensured, that condensation on the wire mesh will not occur; all sensors can be used in the explosion proof versions 4544120, 4544122. Otherwise, these sensors should only be used with Polytron 5000 General Purpose 4544165.

# 8    Order list

| Description | Part Number |
|---|---|
| Polytron 5000, DS d A | 4544120 |
| Polytron 5000, DS d S | 4544122 |
| Polytron 5000, DS d A General Purpose | 4544165 |

## 8.1    Sensors

| Description | Part Number |
|---|---|
| DrägerSensor CO | 6809605 |
| DrägerSensor $H_2S$ | 6810435 |
| DrägerSensor $H_2S$ LC | 6809610 |
| DrägerSensor $H_2S$ HC | 6809710 |
| DrägerSensor $O_2$ LS | 6809630 |
| DrägerSensor $H_2$ | 6809685 |
| DrägerSensor $NH_3$ LC | 6809680[1] |
| DrägerSensor $NH_3$ HC | 6809645[1] |
| DrägerSensor $Cl_2$ | 6809665[1] |
| DrägerSensor $SO_2$ | 6809660[1] |
| DrägerSensor NO | 6809625[2] |
| DrägerSensor $NO_2$ | 6809655[1] |
| DrägerSensor $H_2O_2$ LC | 6809705[1] |
| DrägerSensor EO | 6810740[2] |

1) Only to be used with Polytron 5000 General Purpose part number 4544165.

2) Notice: Gases which react with moisture will not repeatedly pass through the wire mesh, if the transmitter is installed in a non-climate controlled environment. If it can be ensured, that condensation on the wire mesh will not occur; all sensors can be used in the explosion proof versions 4544120, 4544122. Otherwise, these sensors should only be used with Polytron 5000 General Purpose 4544165.

## 8.2    Accessories

| Description | Part Number |
|---|---|
| Pipe Mount Kit | 4544198 |
| Magnet with Key Chain | 4544101 |
| Splash Guard | 6812510 |
| Calibration Adapter PE | 4509314 |
| Calibration Adapter PE, Europe | 6806978 |
| Calibration Adapter Viton | 6810536 |
| Calibration Kit (includes carrying case, calibration adapter 4509314, 500 cc/min cylinder regulator 4557020 and 100 % $N_2$ 103 L @ 1000 PSI nitrogen / zero gas cylinder) | 4594620 |
| Calibration Gases | on request |

## 8.3    Spare parts

| Description | Part Number |
|---|---|
| Bezel Polytron 5000 | 4544184 |
| PCB Main Polytron 5000 | 4544185 |
| PCB Filter Polytron 5000 | 4544252 |
| Sensor Housing Complete | 4544189 |
| Sensor Cap | 4544190 |