Polytron SE Ex PR M1/2 DQ
Polytron SE Ex LC M1/2 DD
Remote Sensor DQ NPT Alu/Steel
Polytron SE Ex HT M DQ

Instructions for use

Dräger. Technology for Life®

Contents

1 Safety-related information

ℹ These instructions for use may be downloaded in other languages from the Technical Documentation Service database (www.draeger.com/ifu) in electronic form, or ordered as a printed copy (order no. 90 33 889) from Dräger.

ℹ For the use of the sensing heads, observe the instructions for use and data sheets for the sensors being used.
The instructions for use and the data sheets for the sensors being used can be downloaded in electronic format from the Database for Technical Documentation (www.draeger.com/ifu).

1.1 Information on safety notes and warnings

Safety notes and warnings warn of dangers and provide instructions for the safe use of the product. Failure to observe these safety notes and warnings may result in personal injury or damage to property.

1.1.1 Safety notes

This document contains sections with safety notes which warn of dangers. The type of danger and the consequences following failure to observe the safety note are included in every safety note.

1.1.2 Warnings

Warnings refer to steps of a task and warn of dangers which may result while the steps are executed. Warnings appear before the steps.

1.2 General safety information

- Before using this product, carefully read the instructions for use.
- 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.
- Do not dispose of the instructions for use. Ensure that they are retained and appropriately used by the product user.
- Only trained and competent users are permitted to use this product.
- Comply with all local and national rules and regulations associated with this product.
- Only specialist, trained personnel are permitted to check, repair and maintain the product as described in the instructions for use.
  Any maintenance work that is not described in the instructions for use is only permitted to be carried out by Dräger or personnel trained by Dräger. Dräger recommends concluding a service contract with Dräger.
- Only use genuine Dräger spare parts and accessories when performing maintenance work, or the proper functioning of the product may be impaired.
- Do not use a faulty or incomplete product. Do not modify the product.

Use in areas subject to explosion hazards

Devices 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 devices 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 devices or components.

Comply with regulations on electrical equipment in explosion-hazard areas and with approval conditions!

2 Conventions in this document

2.1 Meaning of the warning notes

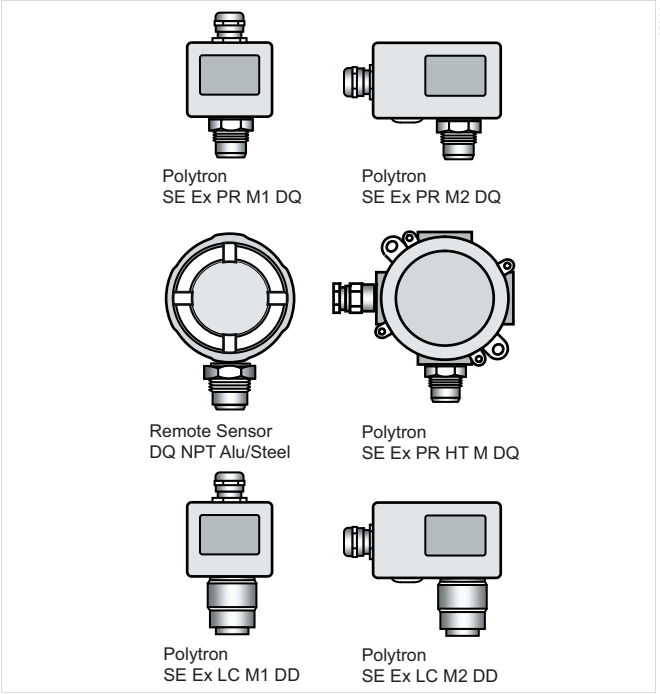
The following warning notes are used in this document to notify users of possible dangers. The meanings of the warning notes are defined as follows:

Alert icon	Signal word	Consequences in case of nonobservance
⚠	WARNING	Indicates a potentially hazardous situation. If not avoided, it could result in death or serious injury.
⚠	CAUTION	Indicates a potentially hazardous situation. If not avoided, it could result in physical injury. It may also be used to alert against unsafe practices.

Alert icon	Signal word	Consequences in case of nonobservance
	NOTICE	Indicates a potentially hazardous situation. If not avoided, it could result in damage to the product or environment.

3 Description

3.1 Product overview



Name	Housing type	DrägerSen-sor	Measuring range
Polytron SE Ex PR M1 DQ	M1	PR M DQ	0–100 %LEL
Polytron SE Ex PR M2 DQ	M2	PR M DQ	0–100 %LEL
Polytron SE Ex HT M DQ	HT	HT M DQ	0–100 %LEL[1)]
Remote Sensor DQ NPT Alu	NPT	PR NPT DQ	0–100 %LEL
Remote Sensor DQ NPT Steel	NPT	PR NPT DQ S	0–100 %LEL
Polytron SE Ex LC M1 DD	M1	LC M	0–10 %LEL
Polytron SE Ex LC M2 DD	M2	LC M	0–10 %LEL

1) Temperature range up to 150 °C

3.2 Intended use

The Polytron SE Ex PR M1/2 DQ and SE Ex HT M DQ und SE Ex LC M1/2 DD as well as Remote Sensor DQ NPT Alu/Steel, SE Ex HT M DQ and SE Ex LC M1/2 DD sensing heads are intended for fixed-location continuous monitoring of combustible gas/air and vapour/air mixtures under the Lower Explosive Limit (LEL) or below 10% of the LEL in atmospheric conditions.

All sensing heads contain sensors with the pressure-resistant enclosure with "db" type of protection, or housing with "tb" type of protection.

The DrägerSensor PR M DD, HT M DD and PR NPT DD sensors will be replaced by the DrägerSensor PR M DQ, HT M DQ and PR NPT DQ (S) sensors. The DD sensors can still be used with the sensing heads.

3.3 Limitations on the intended use

The sensing heads are not approved for use in environments with an increased oxygen content (>21 Vol% O_2). None of the sensing heads and sensors given in this document is certified and approved for operation in oxygen enriched atmospheres.

4 Installation and commissioning

4.1 Sensing head assembly

4.1.1 Assembling the sensing head

Comply with regulations on electrical equipment in explosion-hazard areas and with approval conditions!

The approval marking is located either on the lid or the side of the sensing head housing. During assembly, ensure that the lid and bottom section remain allocated to one another.

Orientation

Although the Polytron SE Ex PR M1/2 DQ and Remote Sensor DQ NPT Alu/Steel as well as SE Ex HT M DQ sensing heads can be positioned as desired during operation, they should preferably be mounted with the sensor's gas inlet area pointing downwards. For installation in the cover area, mounting brackets should therefore be used. The Polytron SE Ex LC M1/2 DD sensing heads should always be fitted with the gas inlet area of the sensor pointing downwards.

- Install the sensing head at a location with minimal vibration and maximum temperature stability (no direct sunlight) in the vicinity of a possible leak.
- Consider the full scope of environmental conditions affecting the sensing head. Avoid external influences such as splashing water, oil, corrosive aerosols (salt mist), etc. and the possibility of mechanical damage.
- The gas inlet area of the sensor must be protected against water, dust and mechanical damage, and kept free of contamination at all times. In particular, paint must not be allowed to seal up the gas inlet opening during painting work.
- If the sensing head is being used to detect combustible vapours, the ground clearance should be kept as low as possible, whilst still providing access for calibration work. Where appropriate, the sensing head should be installed in a removable position.

Mounting the sensing heads

Polytron SE Ex PR M1/M2 DQ Polytron SE Ex LC M1/M2 DD	4 screws (4 mm diameter), through the housing
Polytron HT M DQ	2 screws (6 mm diameter), through the fastening lugs

i For mounting the Remote Sensor DQ NPT Alu/Steel, refer to assembly instructions Junction Box Ex d (ordering no. 4544286).

For further information, see the following chapter: "Dimensions and drilling dimensions", page 44.

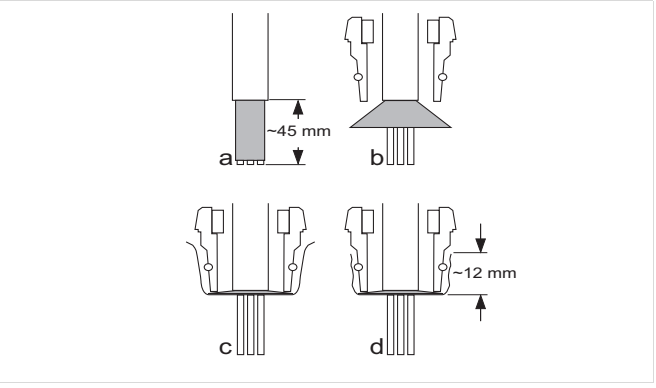
4.2 Electrical installation

Comply with regulations on electrical equipment in explosion-hazard areas and with approval conditions!

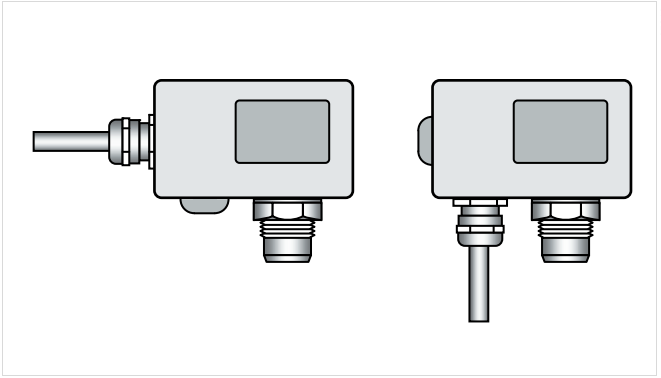
i The sensing head housing has been tested in accordance with IP 66. When the cover is securely tightened and suitable cable entries are being used, this protection can be maintained under normal operating conditions. A minimum protection of IP 65 must be ensured, however.
IP protection ratings do not cover the device being used to measure gas during or after it has been exposed to these conditions. In the event of dust deposits and immersion/water jets, check the calibration and the correct functioning of the device.

4.2.1 Connection between Polytron SE Ex PR M1/2 DQ or SE Ex LC M1/2 DD sensing heads and rack or transmitters

– With 3-wire, shielded line, shield braiding with 80% coverage. Max. outer diameter: 12 mm.
– Connect the shielding to the cabinet or switchboard earth as closely as possible.
– The cable gland is approved for fixed-location installation only. It is suitable for line diameters of 7 to 12 mm. The thread of the cable gland is M 20 x 1.5.
– Place the cable shielding around the plastic cone on the cable gland as shown in the figure, and insert into the metal cable gland. Tightening the cable gland means that the shielding is in electrical contact with the conductive inner lining of the sensing head.



The housing of the Polytron SE Ex PR M2 DQ or SE Ex LC M2 DD sensing heads are equipped on the underside with an explosion-hazard approved plug that can be replaced with the cable gland if required. This means that the cable can be inserted into the sensor from below. This replacement must be carried out before mounting/installation.



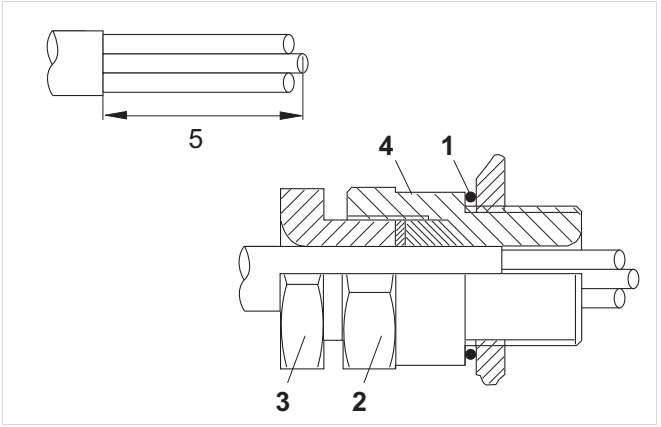
4.2.2 Connection between Polytron SE Ex HT M DQ sensing head and rack or transmitters

– With 3-wire, shielded line, shield braiding with ≥80% coverage. Max. outer diameter: 12 mm.
– Select the cable in accordance with the planned usage temperature range.
– Only connect the shielding to the cabinet or switchboard earth when it is not positioned to earth potential or equipotential bonding in or on the sensing head.

Safety-related information on the cable gland

The cable gland is suitable only for fixed-location installation, and effective strain relief or anti-twist protection of the cable should be provided.

The Peppers cable gland is intended for outdoor use in explosion-hazard areas for non-armoured shielded cable. The shielding should not become caught up in the gland and may therefore need to be laid separately in the housing. It is suitable for normal industrial environments in terms of temperature, humidity and vibration. Material compatibility with regard to chemicals or aggressive substances must be tested prior to installation. It should also be ensured that the O-ring (1) is correctly seated.



Installing the sheathed line

The 3-wire shielded sheathed line is disconnected or stripped in accordance with requirements (5) and inserted into the cable gland so that the cable sheath remains in the cable gland (see figure). The press ring must reliably enclose the cable sheath. Next, use two wrenches (3: M24, 2: M25) to engage screw connection 2 with screw connection 2. The correct torque for this is 25 Nm.

Double earthing can cause EMC problems. To avoid these problems, it is necessary to connect the cable screen to earth potential on one side only; in the central unit or on the sensing head. As the metallic sensing head housing with its outer earth terminal has to be laid to earth potential or equipotential bonding anyway, it is recommended in most cases to lay the shielding on the inner PE terminal of the housing and not to lay the shielding in the central unit.

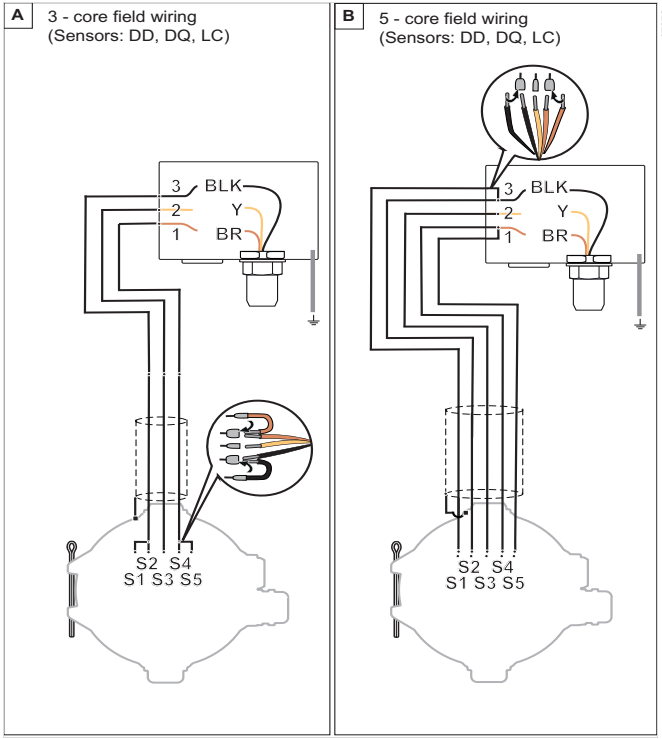
Safety-related information on the HT sensing head housing (High Temperature, Range 2000 type)

The following details on the sensing head housing should be taken into account:

– Installation
  The housing should be installed using the two outer flaps. The housing is not permitted to be supported by a cable entry under any circumstances. The silicone seal should be fitted between the housing and the cover. It is important that the cover is fitted securely to the housing body. All screws for securing the cover should be tightened at a torque of 3.5 Nm.
– Cable entries
  These should be selected in accordance with the details on the approval sticker on the housing cover.
– "T" values
  The housing may be approved for installation under different ambient temperatures. Compliance with the marking on the approval sticker on the housing cover must be ensured in terms of the ambient temperatures at which the housing is installed.
– Earthing
  The housing is fitted with an internal and external hexagon M 6 earth connection made from brass. A suitable ring tab should be used to secure the earthing conductor.
– Ambient conditions
  The terminal box is made of cast iron and is equipped with stainless steel mounting screws for the cover, a silicone gasket and brass earthing screws. Material compatibility of these parts with corrosive substances with which the housing may come into contact must be taken into account. The housing is suitable for use under normal industrial conditions and should not be installed in areas where very high vibrations could occur.
– Misuse
  The housing should only be used as an electrical housing. This is not a housing with pressure-resistant enclosure of protection type "d".
– Tools
  10 mm socket wrench for cover fastening screws, internal and external earthing

4.2.3 Connection to transmitter

4.2.3.1 Polytron 5200/8200



– The line resistance per wire must not exceed 2 ohms.

This results in the following maximum distances for the different wire cross-sections:

Wire cross-section	1.0 mm^2	1.5 mm^2	2.5 mm^2
Max. line length	30 m	50 m	75 m

When using a 3-wire cable:

To allow 3-wire cables to be connected with greater ease, the spare part set (ordering no. 83 26 496) are available. The spare parts sets contain ferrules and 2 cable parts.

– Connect terminals in accordance with figure A.

When using a 5-wire cable:

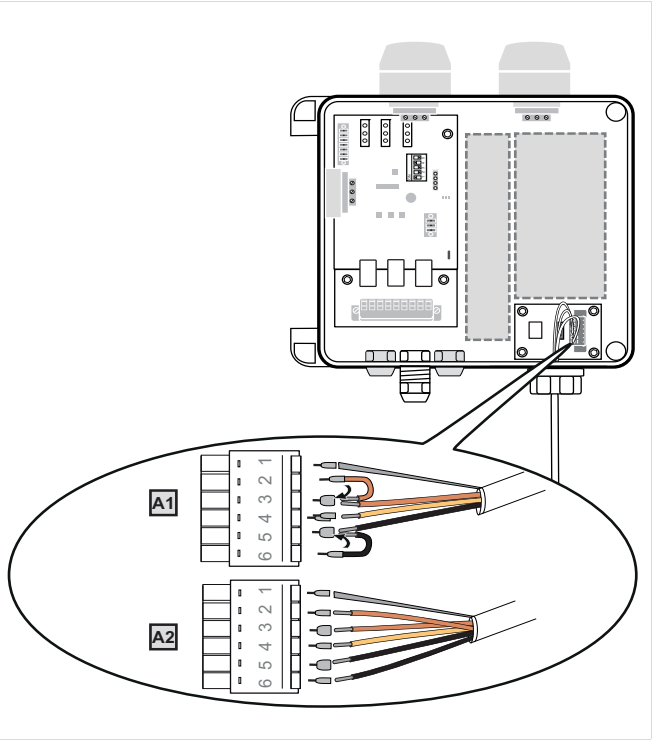
– Connect terminals in accordance with figure B.

When using shielded cables:

1. Remove shielding to 45 mm.
2. Twist the shielding and fit a ferrule.
3. Attach the shielding to pin 1 of the sensor push-in connector.
4. Insert the sensor push-in connector into the socket.
5. Close the cover and secure using the screws (10–15 Nm).

Carefully connect all measuring line connections. Select the measuring lines according to the installation instructions for each operating temperature range.

4.2.3.2 PointGard 3200



– The line resistance per wire must not exceed 2 ohms.

This results in the following maximum distances for the different wire cross-sections:

Wire cross-section	1.0 mm^2	1.5 mm^2	2.5 mm^2
Max. line length	30 m	50 m	75 m

A remote application can be connected to the device via a 3-wire or 5-wire cable. The cables must be shielded.

6-pin push-in connector

For remote applications, a 6-pin push-in connector(order no. 18 96 119) and spare part sets (order no. 83 26 496) are available. The spare parts sets contain ferrules and 2 cable parts.

Wiring table of remote CatEx push-in connectors

The table shows the assignments between the connection points in the sensing head or junction box and the pins in the 6-pin connector.

Push-in connector pin	Sensing head connection point number	Wire colour in the junction box
1	Cable shielding	-
2	1	brown
3	1	brown
4	2	yellow
5	3	black
6	3	black

1. Unfasten the screws and open the cover.
2. Remove the plug from the connector for the sensor.
3. Lay the cables of the sensing head or junction box through the connector for the sensor.
4. Remove insulation leaving 5 to 7 mm.
5. Fit ferrules onto the cable braid.

When using a 3-wire cable:

- Connect terminals in accordance with figure A1.
- Join the preassembled cable parts with the corresponding field cabling in a twin ferrule and crimp.

When using a 5-wire cable:

- Connect terminals in accordance with figure A2.

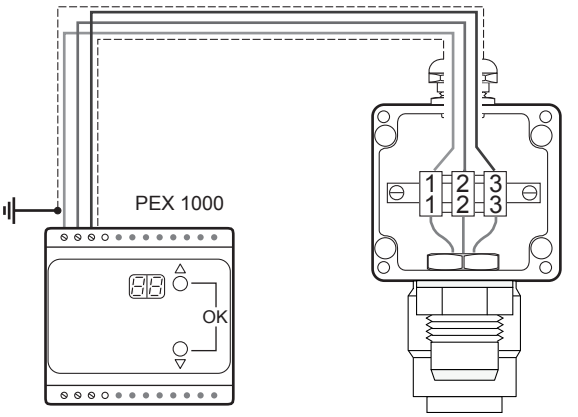
When using shielded cables:

- Remove shielding to 45 mm.
- Twist the shielding and fit a ferrule.
- Attach the shielding to pin 1 of the sensor push-in connector.

6. Insert the sensor push-in connector into the socket.
7. Close the cover and secure using the screws (2.5 Nm).

Carefully connect all measuring line connections. Select the measuring lines according to the installation instructions for each operating temperature range.

4.2.3.3 PEX 1000



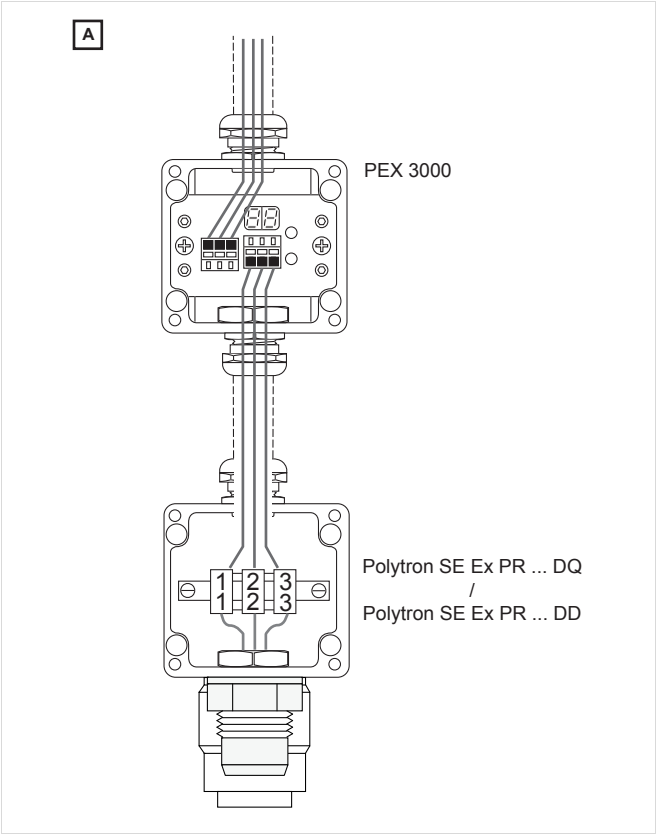
The maximum line lengths for loads of 250 ohms can be found in the following table.

This results in the following maximum distances for the different wire cross-sections:

Sensing head / Sensor current	Wire cross-section 0.5 mm² (36 ohms/km)	0.75 mm² (24 ohms/km)	1.0 mm² (18 ohms/km)	1.5 mm² (12 ohms/km)
Polytron SE Ex PR ... DQ, Remote Sensor DQ NPT Alu/Steel 255 mA	170 m	260 m	345 m	500 m
Polytron SE Ex LC ... DD 276 mA	150 m	225 m	300 m	500 m

1. Remove the transmitter housing cover.
2. Connect terminals in accordance with the figure.
   a. Connect "brown" terminal to terminal 1.
   b. Connect "yellow" terminal to terminal 2.
   c. Connect "black" terminal to terminal 3.
3. Close the housing cover and tighten hand-tight using the screws.

4.2.3.4 PEX 3000

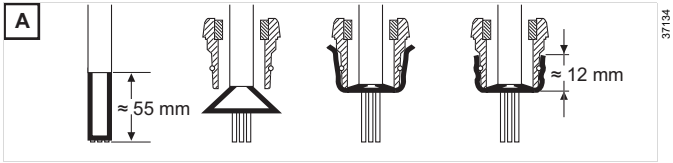


– The line resistance per wire must not exceed 10 ohms.
– For the wiring between the gas measurement transmitter and sensing head (e.g. sensing head SE Ex ... DQ), only use wires with a cross-section of at least 0.75 mm^2. Wires with a cross-section of 0.5 mm^2 can be used if fitted with an insulated ferrule (Zoller+Fröhlich, type V3AE0005, V3AE0037 or equivalent). This ensures that the protection rating of IP 30 is preserved if the housing is opened for maintenance purposes.

This results in the following maximum distances for the different wire cross-sections:

Wire cross-section	0.5 mm^2	1.0 mm^2	1.5 mm^2
Max. line length	50 m	100 m	150 m

1. Remove the transmitter housing cover.
2. Place the cable shielding around the plastic cone as shown in the figure and insert into the metal cable gland. Tightening the cable gland means that the shielding is in electrical contact with the conductive inner lining of the transmitter housing. This measure ensures the required RF-immunity according to EN 50 270.



3. Connect terminals in accordance with figure A.
   a. Connect "brown" terminal to terminal 1.
   b. Connect "yellow" terminal to terminal 2.
   c. Connect "black" terminal to terminal 3.
4. Close the housing cover and tighten with the screws (1.2 Nm).

Carefully connect all measuring line connections. Select the measuring lines according to the installation instructions for each operating temperature range.

4.3 Commissioning the sensing head

⚠ CAUTION

Delayed response time on the control unit.

When the sensing head is connected to the control unit, the overall response time may be delayed. The entire measuring path must be taken into account (e.g. latency of the control unit).

► Ensure that the required response time is maintained.

Observe the following instructions relating to the measuring function:

– Response to very high gas concentrations:
The measuring principle of heat of reaction, which is based on the catalytic oxidation of a flammable gas, is essentially ambiguous because at high measuring gas concentrations there is not enough oxygen in the sensor for oxidation of the flammable gas. As a result, the measuring signal decreases at high gas concentrations and can lead to values within the measuring range. The downstream controller must be operated with alarm devices and measured value outputs (if present), as well as alarm outputs operating as latched if the measuring range is exceeded. These types of latching alarms are only permitted to be reset when it has been demonstrated via a measurement taken outside the gas detection system that the concentration of flammable gases or vapours is below the full scale value.
– Minimum oxygen concentration:
The catalytic measuring principle requires a minimum oxygen concentration of 12 Vol%, otherwise the measured values displayed will be too low due to oxygen deficiency.
– Ensure adequate ventilation! Always position the sensing head and sensor in the air flow between possible leak or collection points and the potential source of ignition
.
– Note the density of the gas! For gases with densities lower than that of air, such as hydrogen, methane or ammonia the sensing head must be located above a possible leak or at the highest points where greater concentrations of gas may be found. For gases and vapours with densities greater than that of air, the sensing head must be installed beneath a possible leak or at the lowest points where these gases and vapours may be present.
– Although the sensing heads have been factory-tested before delivery, the commissioning process following installation must include zero-point and sensitivity testing. The commissioning process must be concluded with a functional test of the complete gas detection system.
– Measured values are not compromised when exposed to heavy air flow, however measured values will read up to 16% LEL higher when exposed to a heavy flow of 50% LEL test gas.
– In conjunction with a REGARD control unit or Polytron transmitters with preset alarm thresholds, acoustic and visible alarm devices or automatic countermeasures may be initiated before the detected gases or vapours can form dangerous flammable mixtures with air.
– The DrägerSensor PR M DQ / HT M DQ / PR NPT DQ (S) and LC M/NPT sensors can be damaged temporarily or permanently in the presence of sensor poisons. Sensor poisons are hydrogen sulphide, hydrocarbons containing sulphur, and volatile silicon bonds. To a lesser extent, frequent exposure to high concentrations of halogenated or nitrogen-containing hydrocarbons may impair the sensor properties. Sensor poisoning is typically first manifested in a decrease in sensitivity to methane. Sensitivity to other combustible substances is generally less impaired.

4.3.1 Locking alarms

For tests or settings, it may be necessary to lock the alarm evaluation in downstream devices. Follow the instructions in the instructions for use for the relevant device.

⚠ WARNING

An alarm lock does not generate any electrical signal to indicate the alarm lock.

► To prevent the gas warning system remaining in this unsafe condition, organisational measures must be implemented (e.g. warning sign, information provided by the safety officer).

4.3.2 Setting the sensor current

The DrägerSensor PR M DQ, PR NPT DQ and HT M DQ sensors are operated with 255 mA.

For backwards compatibility, the DrägerSensor PR M DQ / PR NPT DQ (S) sensors can be operated with a sensor current of 270 mA.

The DrägerSensor LC M and LC NPT sensors are operated with 276 mA.

The warm-up time can be found in the instructions for use for the sensors.

4.3.3 Calibrating/adjusting the Polytron SE Ex sensing head

Follow the instructions for use for the sensors and the corresponding devices.

5 Maintenance

5.1 Servicing and maintenance

5.1.1 Service intervals

ℹ Observe standard EN 60079-29-2 and the relevant national laws and regulations.

Daily:

– Visual inspection to establish readiness for operation.

During commissioning:

– Set the sensor current. For further information, see the following chapter: "Setting the sensor current", page 38.
– Calibrate and adjust the sensing head. For further information, see the following chapter: "Calibrating/adjusting the Polytron SE Ex sensing head", page 39.

At regular intervals,

as specified by those responsible for the gas detection system, and not exceeding an interval of 6 months:

– Check signal transmission to the control unit and alarm activation - see the instructions for use of the control unit being used.
– Calibrate/adjust the sensing head. For further information, see the following chapter: "Calibrating/adjusting the Polytron SE Ex sensing head", page 39. The interval for regular calibration depends on the operating conditions.

Regular checks must be performed to ensure that the gas inlet opening on the sensor is in a condition that does not impair the gas infeed due to corrosion or deposits (dust, oil, aerosols).

Every six months:

– Inspection by specialists.

The length of the inspection intervals must be established in each individual case depending on safety considerations, process conditions, and the technical requirements of the equipment. We recommend the Dräger maintenance service for a service contract and for repair work.

If necessary:

– change the sensor. For further information, see the following chapter: "Replacing the sensor", page 39.

5.2 Replacing the sensor

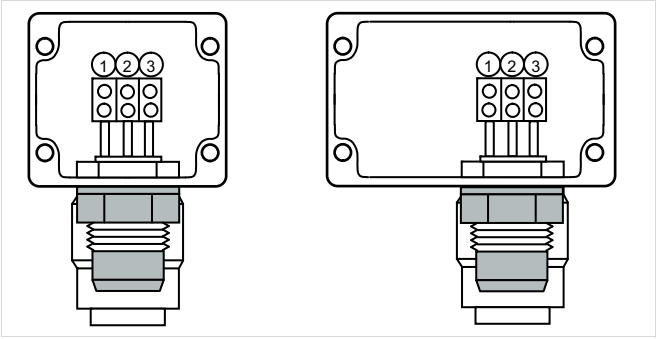
⚠ **WARNING**

Only replace the sensor when the control unit is switched off or with the transmitter switched off in explosion-hazard areas. Even in safe areas, the control unit or transmitter must first be deenergised to avoid potential damage to the sensor.

ℹ Observe national regulations for the installation of electrical apparatus in potentially explosive atmospheres (in Europe EN 60 079-14)!

1. Deenergise the control unit.
2. Disconnect the transmitter from the supply.

5.2.1 Polytron SE Ex PR M1/2 DQ and SE Ex LC M1/2 DQ sensing heads



1. After switching off the operating voltage, open the sensing head terminal box and remove the upper part.
2. Unfasten the sensor lines
3. Unscrew the hexagon nut(s).
4. Unscrew the old sensor, shorten the sensor lines for the new sensor as appropriate and strip by approx. 8 to 10 mm. Use the ferrules provided.

⚠ WARNING

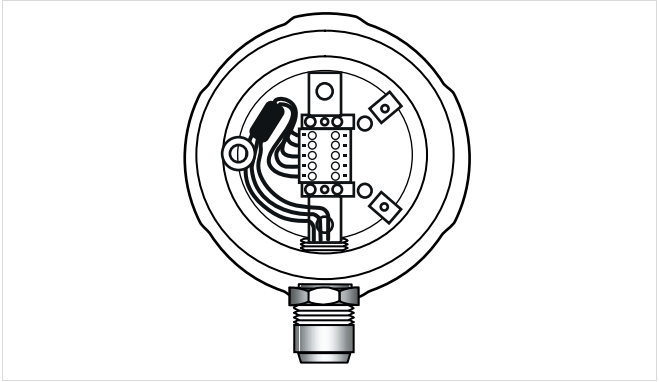
To maintain the IP 66 protection rating and for explosion protection reasons, ensure that the sensor sealing ring is correctly seated.

5. Screw in the new DrägerSensor (torque: 15 ±3 Nm) and secure against self-loosening with a hexagon nut, e.g. Loctite no. 221.
6. Connect the sensors lines on the new sensor to the terminals:

Terminal 1	brown line
Terminal 2	yellow line
Terminal 3	black line

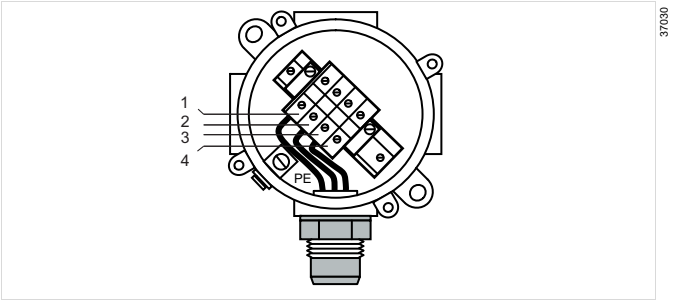
7. Close the terminal box, ensuring that it is free of dust

5.2.2 Remote Sensor DQ NPT Alu/Steel



For installing the Remote Sensor DQ NPT Alu/Steel, refer to assembly instructions Junction Box Ex d (ordering no. 4544286).

5.2.3 Polytron SE Ex HT M DQ sensing head



1. After shutting down the operating voltage, unfasten the four screws on the top of the sensing head and remove the upper part.
2. Unfasten the sensor lines from terminals 1, 2 and 3.
3. Unscrew the old sensor. Shorten the sensor lines for the new sensor as appropriate and strip by approx. 8 to 10 mm. Use the ferrules provided.
4. Check the sensor current and set to 255 mA.

⚠ WARNING

To preserve the IP 66 protection rating and for explosion protection reasons, ensure that the sensor sealing ring and the flat silicone gasket included with the sensor are correctly seated.

5. Screw in the new sensor (torque: 7 ±2 Nm) and secure against self-loosening, e.g. using Loctite no. 221.
6. Connect the lines on the new sensor to the terminals:

Terminal 1	brown line
Terminal 2	yellow line
Terminal 3	black line
Terminal 4	(if present) is not connected.

7. Position the upper part with corresponding silicone sealing ring and secure using the four screws (torque 3.5 Nm), ensuring that the device is free of dust.

5.2.4 Switching back on after replacing the sensor

1. Switch the control unit or transmitter back on or insert the channel card back into the rack.

   ℹ The warm-up time of new sensors can be found in the instructions for use for the sensor at hand.

2. A calibration must be performed after every sensor replacement. For further information, see the following chapter: "Calibrating/adjusting the Polytron SE Ex sensing head", page 39.

5.3 Using a sensor diaphragm or the anti-dust filter

ℹ Do not use the sensor diaphragm or the anti-dust filter with the DrägerSensor HT M DQ.

To ensure protection against moisture and dust and to reduce sensitivity to wind and flow exposure, you can fit a sensor diaphragm to the gas inlet (ordering no. 83 26 840). The sensor diaphragm will not increase sensor response time (except in vapours of long-chain compounds such as *n*-nonane). It only has a negligible impact on sensitivity. Upon fitting the sensor diaphragm, make sure you adjust the unit accordingly. The sensor diaphragm must be inspected visually each time before adjustment and replaced if necessary.

Sensors used in particularly dusty environments and exposed to high levels of aerosol may be used together with an anti-dust filter (ordering no. 68 10 537). It is simply pressed into the opening upstream of the wire mesh disc of the sensor and latches into place. The anti-dust filter will not increase sensor response time (except in vapours of long-chain compounds such as *n*-nonane). It only has a negligible impact on sensitivity. When using an anti-dust filter, however, ensure it is used also during each adjustment. The anti-dust filter should be replaced before adjustment is carried out.

ℹ Do not use the sensor diaphragm and the anti-dust filter together.

6 Disposal

This product must not be disposed of as household waste. This is indicated by the adjacent symbol.
You can return this product to Dräger free of charge. For information please contact the national marketing organizations or Dräger.

7 Technical data

7.1 Approvals and technical data

Polytron SE Ex PR M1/2 DQ and Remote Sensor DQ NPT Alu/Steel sensing heads	
Operating parameters	
Constant current, sensor	255 mA
Voltage	30 V
Power	2 W
IP protection rating conforming to EN 60 529:	IP 66

Device identification conforming to 2014/34/EU:	Dräger Safety, D-23560 Lübeck, Germany Polytron SE Ex PR M1/2 DQ II 2G Ex db eb IIC T6 to T4 Gb II 2D Ex tb IIIC T130 °C Db Remote Sensor DQ NPT Alu/Steel II 2G Ex db IIC T6 to T4 Gb II 2D Ex tb IIIC T130 °C Db BVS 10 ATEX E 060 X, IECEx BVS 10.0045 X CE marking with the number of the named body Year of manufacture from serial number[1)]

Polytron SE Ex LC M1/2 DD sensing heads	
Operating parameters	
Constant current, sensor	276 mA
Voltage	60 V
Power	1 W
IP protection rating conforming to EN 60 529:	IP 66

Device identification conforming to 2014/34/EU:	Dräger Safety, D-23560 Lübeck, Germany Polytron SE Ex LC M1/2 DD II 2G Ex db eb IIC T6/T5/T4 Gb II 2D Ex tb IIIC T130 °C Db BVS 10 ATEX E 060 X, IECEx BVS 10.0045X CE marking with the number of the named body Year of manufacture from serial number[1)]

Ambient conditions	
in operation:	
Polytron SE Ex PR M1/2 DQ	–50 to +40/55/85 °C
Polytron SE Ex PR NPT1 DQ	-40 to +40/55/60 °C
Polytron SE Ex LC M1/2 DD[2)]	-40 to +40/50/85 °C
Surface temperature	+130 °C
	800 to 1200 mbar (DQ), 900 to 1100 (LC) 5 to 95 % relative humidity, non-condensing

During storage (also applies to replacement sensors):	-40 to +65 °C 700 to 1300 mbar 10 to 90% relative humidity, non-condensing Unlimited storage time

1) The year of manufacture is the 3rd letter of the serial number located on the name plate: R = 2022, S = 2023, T = 2024 and so on For instance: Serial number ARSH-0054, the 3rd letter is S, meaning the year of manufacture is 2023.
2) Measurement characteristic specified up to +65 °C.

Polytron SE Ex HT M DQ sensing head	
Operating parameters	
Constant current, sensor	255 mA
Voltage	30 V
Power	2 W
IP protection rating conforming to EN 60 529:	IP 66

Device identification conforming to 2014/34/EU:	Dräger Safety, D-23560 Lübeck, Germany
	Polytron SE Ex HT M DQ
	Year of manufacture from serial number[1)]
1. DrägerSensor HT M DQ:	Dräger Safety, D-23560 Lübeck, Germany DrägerSensor HT M DQ II 2G Ex db IIC T6 to T3 Gb II 2D Ex tb IIIC T130 to T195°C Db IP 6x DEMKO 09 ATEX 0924202 X CE 0158, year of manufacture from serial number[1)]
2. Housing:	Flameproof Electrical Enclosures Ltd., Oldbury, England Range 2000 type II 2G Ex eb IIC T3 Gb II 2D Ex tb IIIC T200 °C Db IP 66 max. power 9 Watts CML 14 ATEX 3040 CE 0518, year of manufacture
Cable gland:	Peppers Cable Glands Ltd., Surrey GU15 3BT, UK A3LF type II 2G Ex eb IIC Gb II 1D Ex ta IIIC Da SIRA 01 ATEX 1272X

Ambient conditions	
in operation:	–50 to +40/55/85/150 °C
Surface temperature:	+130 °C / +195 °C 800 to 1200 mbar, 5 to 95% relative humidity, non-condensing
During storage (also applies to replacement sensors):	-40 to +65 °C 700 to 1300 mbar 10 to 90 % relative humidity, non-condensing, unlimited storage time

1) The year of manufacture is the 3rd letter of the serial number located on the name plate: R = 2022, S = 2023, T = 2024 and so on For instance: Serial number ARSH-0054, the 3rd letter is S, meaning the year of manufacture is 2023.

7.2 EAC

– Срок службы: 10 лет
– Максимальный срок хранения: 5 года (срок хранения может быть увеличен при сервисном обслуживании)

Условия транспортировки и хранения:

-40 до +65 °Cот 700 до 1300 гПаот 10 до 90 % относительной влажности, без конденсации влаги

7.3 Dimensions

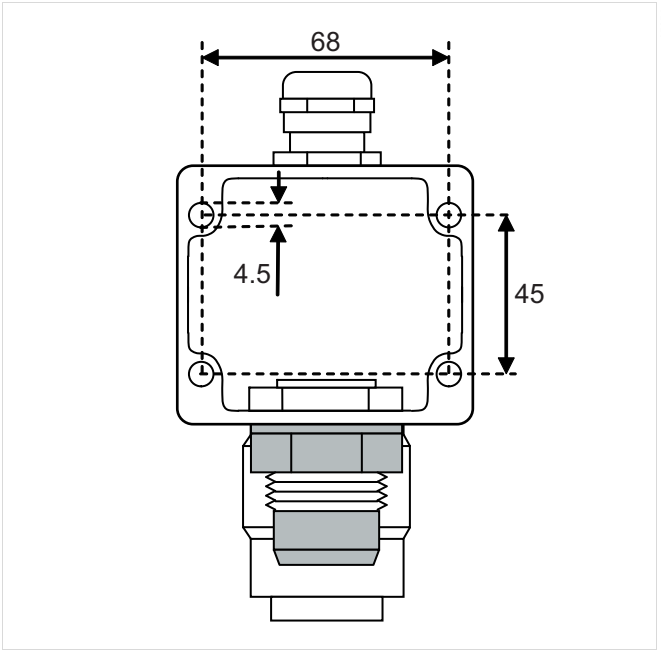
Sensing head	W x H x D in mm
Polytron SE Ex PR M1 DQ incl. sensor and cable gland	80 x 130 x 56
Polytron SE Ex LC M1 DD incl. sensor and cable gland	80 x 145 x 56
Polytron SE Ex PR M2 DQ incl. sensor and side cable gland	136 x 107 x 56
Polytron SE Ex LC M2 DD incl. sensor and side cable gland	136 x 124 x 56
Remote Sensor DQ NPT Alu/Steel incl. sensor	150 x 175 x 130
Polytron SE Ex HT M DQ incl. sensor and cable gland	150 x 152 x 85

7.4 Dimensions and drilling dimensions

(in mm)

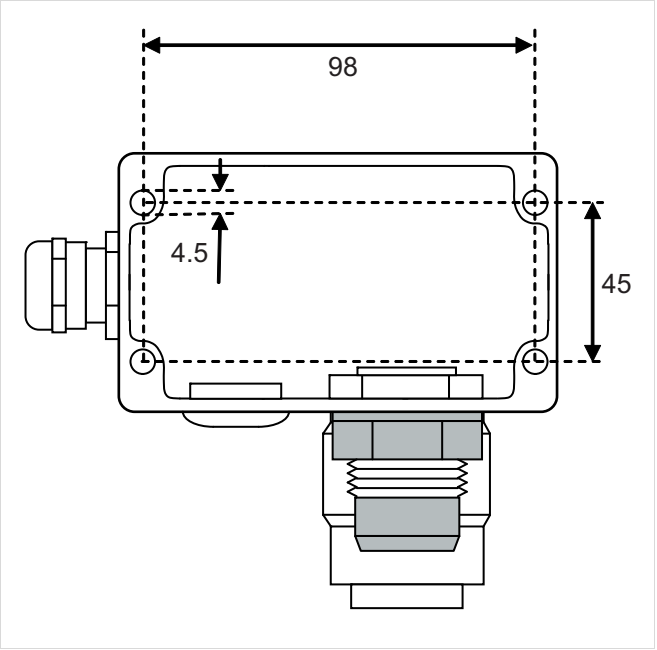
Polytron SE Ex PR M1 DQ sensing head

Polytron SE Ex LC M1 DD sensing head



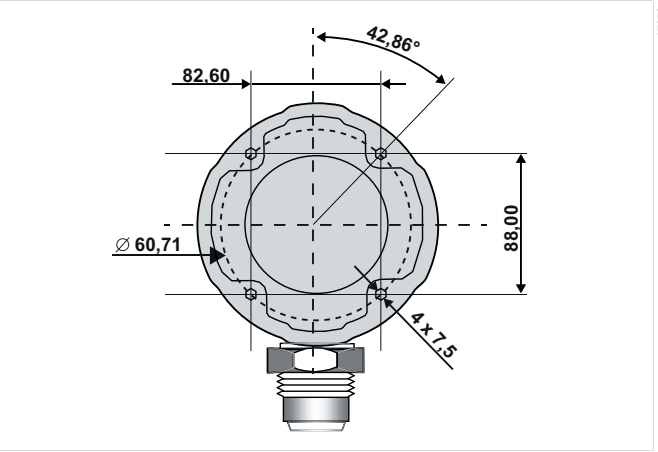
Polytron SE Ex PR M2 DQ sensing head

Polytron SE Ex LC M2 DD sensing head



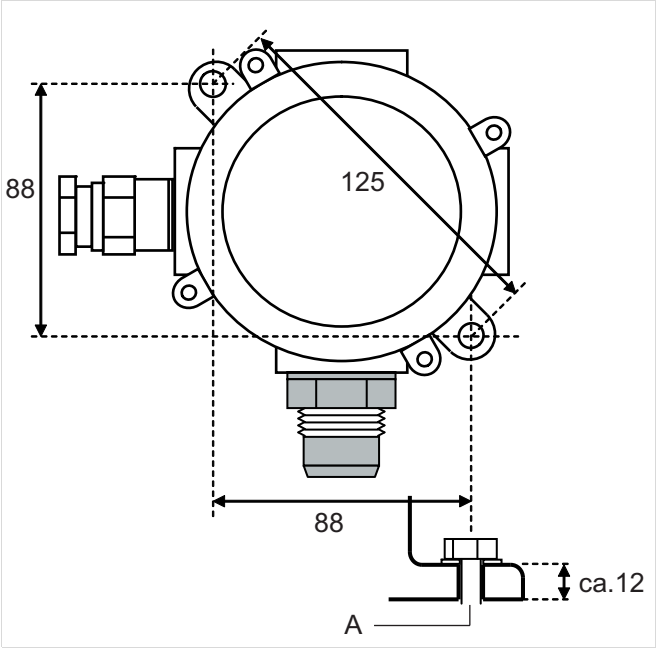
Remote Sensor DQ NPT Alu/Steel

(Diameter of holes for wall mounting: 7 mm)



Polytron SE Ex HT M DQ sensing head

(Diameter of holes for wall mounting: 6 mm)



7.5 Order list

Designation and description	Order no.
Measuring range 0...100 %LEL	
Designation and description	**Order no.**
Polytron SE Ex PR M1 DQ sensing head	68 12 711
Polytron SE Ex PR M2 DQ sensing head	68 12 710
Remote Sensor DQ NPT Alu	37 06 933
Remote Sensor DQ NPT Steel	37 06 934
Measuring range 0...10 %LEL	
Polytron SE Ex LC M1 DD sensing head	68 12 722
Polytron SE Ex LC M2 DD sensing head	68 12 721
Measuring range 0...100 %LEL for high temperature usage	
Polytron SE Ex HT M DQ sensing head	68 12 720
Accessories	
Calibration adapter (PE) (can be used up to 70 °C)	68 06 978
Process adapter (stainless steel, with M30x1.5 union nut) for DrägerSensor PR M DQ, DrägerSensor PR NPT DQ, DrägerSensor DQ NPT S and DrägerSensor HT M DQ	68 12 470
Process adapter (stainless steel, with M36x1.5 union nut) for DrägerSensor LC M and DrägerSensor LC NPT	68 12 465
Anti-dust filter (a set of 10 small PTFE discs) for DrägerSensor PR M DQ, DrägerSensor PR NPT DQ and DrägerSensor DQ NPT S	68 10 537
Diaphragm spare part set, 21.50x14.50, set of 2 for DrägerSensor PR M DQ, DrägerSensor PR NPT DQ and DrägerSensor DQ NPT S	83 26 840
Remote calibration adapter DD/DQ	68 12 480

Designation and description	Order no.
Remote calibration adapter LC	68 12 482

Spare parts	
DrägerSensor PR M DQ	68 14 140
DrägerSensor PR NPT DQ	68 14 150
DrägerSensor PR NPT DQ S	37 01 800
DrägerSensor LC M	68 10 350
DrägerSensor LC NPT	68 10 675
DrägerSensor HT M DQ	68 14 145

8 Declaration of Conformity

40994

EU-Konformitätserklärung
EU-Declaration of Conformity

Dokument Nr. / *Document No.* SE20006-07

Wir / *we* Dräger Safety AG & Co. KGaA, Revalstraße 1, 23560 Lübeck, Germany

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Messkopf Typ Polytron SE Ex HT M DD
Sensing Head type Polytron SE Ex HT M DD

gemäß den Bestimmungen der Richtlinie 2014/34/EU (Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen) ein kombiniertes Gerät ist, das sich aus drei nachfolgend aufgeführten Produkten zusammensetzt, die jedes für sich einer Baumusterprüfung unterzogen und von der benannten Stelle zertifiziert wurden, und dass sich durch deren Zusammenbau keine zusätzlichen Gefahren ergeben.

following the provisions of the Directive 2014/34EC (Equipment and protective systems intended for use in potentially explosive atmospheres) is a combined equipment, which is assembled of the three following mentioned products, each having undergone a type examination test and certification by the notified body, and that by their assembly no additional risk arises.

Produkt Product	Hersteller Manufacturer	EU-Baumusterprüfbescheinigung EU-Type examination certificate	Gerätegruppe, Kategorie und Zündschutzart Equipment group, category, and type of protection
Gassensor DrägerSensor HT M DD Typ XDS 0211 Gas sensor DrägerSensor HT M DD type XDS 0211	Dräger Safety AG & Co KGaA Revalstraße 1 D-23560 Lübeck Germany	DEMKO 09 ATEX 0924202X	II 2G Ex db IIC T6...T3 Gb II 2D Ex tb IIIC T130...T195°C Db IP6x
Klemmenkasten Typ Range 2000 Junction Box type Range 2000	Flameproof Electrical Enclosures Ltd. Tat Bank Road, Oldbury, West Midlands, B69 4NP U.K.	CML 14 ATEX 3040	II 2G Ex eb IIC T3Gb II 2D Ex tb IIIC T170°C Db
Kabeleinführung Typ A3LF Cable gland type A3LF	Peppers Cable Glands Ltd. Stanhope Road, Camberley, Surrey GU15 3BT, U.K.	SIRA 01 ATEX 1272 X	II 2G Ex eb IIC Gb II 1D Ex ta IIIC Da

Die Kombination erfüllt die Zündschutzart: II 2G Ex db eb IIC T3 Gb und II 2D Ex tb T195°C Db

The combination fulfils the type of protection: II 2G Ex db eb IIC T3 Gb and II 2D Ex tb T195°C Db

In ihren Konformitätserklärungen bestätigen die Hersteller, dass die oben aufgeführten Produkte den Anforderungen der 2014/34/EU entsprechen und unter einem Qualitätssicherungssystem hergestellt, endabgenommen und geprüft wurden, das von einer benannten Stelle zugelassen wurde.

In their Declarations of Conformity the manufacturers confirm that the above mentioned products are in conformity with the directive 2014/34EC and have been manufactured, finally inspected and tested under a quality system which has been approved by a notified body.

Lübeck, 2019-01-03

Ort und Datum (jjjj-mm-tt)
Place and date (yyyy-mm-dd)

Dr. Marcus Romba
Head of Electronic Engineering
Head of Product Qualification
Safety Products
Research & Develop

43063

EU-Konformitätserklärung
EU-Declaration of Conformity

Dokument Nr. / *Document No.* SE20908-04

Wir / *we* Dräger Safety AG & Co. KGaA, Revalstraße 1, 23560 Lübeck, Germany

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Gas-Messkopf Typ Polytron SE Ex ** * DD/DQ**
*Gas Sensing Head type Polytron SE Ex ** *** DD/DQ*

mit der EU-Baumusterprüfbescheinigung / Expertise
is in conformity with the EU-Type Examination Certificate / Expertise
BVS 10 ATEX E 060 X
MEDB00005C0

ausgestellt von der notifizierten Stelle mit der Kenn-Nr.
issued by the Notified Body with Identification No.
DEKRA EXAM GmbH
Dinnendahlstraße 9
D-44809 Bochum
0158

DNV GL SE
Brooktorkai 18
D-20457 Hamburg
0098

und mit den folgenden Richtlinien unter Anwendung der aufgeführten Normen übereinstimmt
and is in compliance with the following directives by application of the listed standards

Bestimmungen der Richtlinie *provisions of directive*		**Nummer sowie Ausgabedatum der Norm** *Number and date of issue of standard*
2014/34/EU	**ATEX-Richtlinie** *ATEX Directive*	EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015+A1:2018, EN 60079-31:2014
2014/90/EU	**Schiffsausrüstungs-Richtlinie** *Marine Equipment Directive*	IEC 60092-504:2016, IEC 60533:2015 EN IEC 60079-0:2018, EN 60079-29-1:2016
2011/65/EU 2015/863/EU	**RoHS-Richtlinie** *RoHS Directive*	EN IEC 63000:2018

Überwachung der Qualitätssicherung Produktion durch
Surveillance of Quality Assurance Production by
DEKRA Testing and Certification GmbH
Handwerkstrasse 15
70565 Stuttgart
0158

DNV GL SE
Brooktorkai 18
D-20457 Hamburg
0098

Zertifikat-Nr.:
Certificat No.:
BVS 17 ATEX ZQS/E100

MEDD00000TF , Rev. No.: xx

Lübeck, 2021-09-10

Ort und Datum (jjjj-mm-tt)
Place and date (yyyy-mm-dd)

Dr. Marcus Romba
Head of Electronic Engineering
Head of Product Qualification
Safety Products
Research & Develop

57716

CE

EU-Konformitätserklärung
EU-Declaration of Conformity

Dräger

Dokument Nr. / *Document No.* 11250808-00

Wir / *we* Dräger Safety AG & Co. KGaA, Revalstraße 1, 23560 Lübeck, Germany

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Messkopf Typ Remote DQ
Sensing Head type Remote DQ

gemäß den Bestimmungen der Richtlinie 2014/34/EU (Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen) ein kombiniertes Gerät ist, das sich aus drei nachfolgend aufgeführten Produkten zusammensetzt, die jedes für sich einer Baumusterprüfung unterzogen und von der benannten Stelle zertifiziert wurden, und dass sich durch deren Zusammenbau keine zusätzlichen Gefahren ergeben.

following the provisions of the Directive 2014/34EC (Equipment and protective systems intended for use in potentially explosive atmospheres) is a combined equipment, which is assembled of the three following mentioned products, each having undergone a type examination test and certification by the notified body, and that by their assembly no additional risk arises.

Produkt Product	Hersteller Manufacturer	EU-Baumusterprüfbescheinigung EU-Type examination certificate	Gerätegruppe, Kategorie und Zündschutzart Equipment group, category, and type of protection
Gasmessgerät Anschlussdose Typ EAC 01** Gas Detection Transmitter Junction Box type EAC 01**	Dräger Safety AG & Co KGaA Revalstraße 1 D-23560 Lübeck Germany	PTB 11 ATEX 1005 X	II 2G Ex db IIC T6...T4 Gb II 2D Ex tb IIIC T80...130°C Db IP6X -40°C ≤ Ta ≤ +40...+80°C
Gassensor DrägerSensor HT M DQ Typ XDS 02** Gassensor DrägerSensor HT M DQ type XDS 02**	Dräger Safety AG & Co KGaA Revalstraße 1 D-23560 Lübeck Germany	DEMKO 09 ATEX 0924202X	II 2G Ex db IIC T6...T3 Gb II 2D Ex tb IIIC T130...T195°C Db IP6X -50 °C ≤ Ta ≤ +40...+85 °C

Die Kombination erfüllt die Zündschutzart: II 2G Ex db IIC T6...T4 Gb und II 2D Ex tb T130°C Db

The combination fulfils the type of protection: II 2G Ex db IIC T6...T4 Gb und II 2D Ex tb T130°C Db

In ihren Konformitätserklärungen bestätigen die Hersteller, dass die oben aufgeführten Produkte den Anforderungen der 2014/34/EU entsprechen und unter einem Qualitätssicherungssystem hergestellt, endabgenommen und geprüft wurden, das von einer benannten Stelle zugelassen wurde.

In their Declarations of Conformity the manufacturers confirm that the above mentioned products are in conformity with the directive 2014/34EC and have been manufactured, finally inspected and tested under a quality system which has been approved by a notified body.

Lübeck, 2023-04-04

Ort und Datum (jjjj-mm-tt)
Place and date (yyyy-mm-dd)

Ingo Pokar
Head of R&D Safety

Importer (UK): *Draeger Safety UK Ltd*
Ullswater Close,
Blyth Riverside Business Park
Blyth, Northumberland NE24 4RG, UK

Manufacturer
Dräger Safety AG & Co. KGaA
Revalstraße 1
D-23560 Lübeck
Germany
+49 451 8 82-0

Distributor
Dräger Safety UK Limited
Ullswater Close
Blyth, NE24 4RG
United Kingdom
Tel: +44 1670 352 891
Fax: +44 1670 356 266

9033888 – 4675.740 me

Edition: 9 – 2023-03 (Edition: 1 – 2010-06)
Subject to alterations