DrägerSensor IR – Installation Instructions

Any use of the gas sensor requires full understanding and strict observation of the Instructions for Use of the DrägerSensor IR (Order No. 9023483).

How to Install the Gas Sensor

Only trained service personnel (e.g. Dräger Safety service personnel) may install the gas sensor under observation of relevant regulations.

Mounting Location

The protecting effect of the gas sensor depends on the selection of the mounting location. By taking the site's air flow conditions into account, the best possible mounting location should be chosen as close as possible to where a decisively noticeable rise in gas concentration can be expected in case of a leakage, i. e.

- as close as possible to the potential leakage place
- when monitoring gases and vapours which are lighter than air: above the potential leakage place
- when monitoring gases and vapours which are heavier than air: near to ground.

In addition, it must be assured that:

- the air circulation in the gas sensor vicinity is not hindered
- the danger of mechanical damage is reduced as far as possible
- the gas sensor is sufficiently accessible for maintenance purposes. Especially the configuration via magnetic pin requires a clearance of approx. 20 cm around at least half of the sensor perimeter.

The gas sensor can be mounted horizontally as well as vertically.

Mechanical Installation

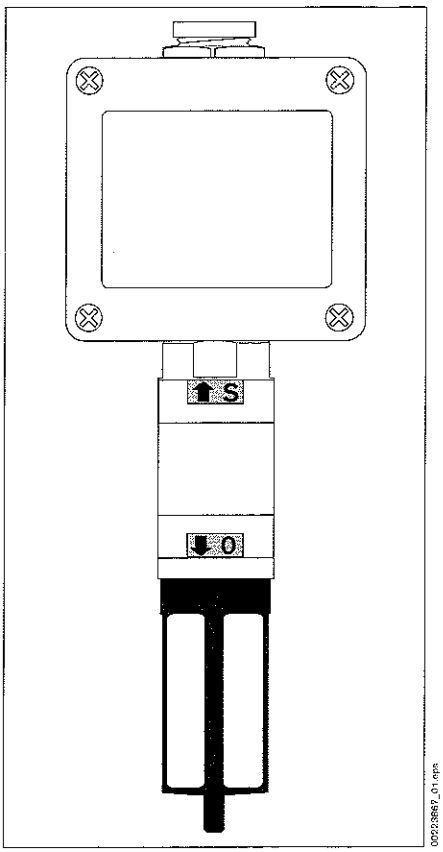
Junction Box

The gas sensor is designed to be directly attached to a junction box. Approved junction boxes of the following makes are available as gas sensor accessories: EEx d (explosion proof, 3/4" NPT) and EEx e (refer to the Instructions for Use).

- The enclosed O-ring seal must be used for a connection using type of explosion protection EEx e, to maintain the housing protection class. The M25 nut must be secured against self-loosening a using thread locking adhesive, e.g. Loctite®.
- Any unused cable entry openings at the junction box must be closed using approved plugs.

Splash Guard and Calibration Adapter

We recommend using the supplied splash guard and calibration adapter to increase protection against water jets and contamination. The measuring technique characteristics of the gas sensor are not impaired by the splash guard. The splash guard is held by a fixture provided with screw-thread, which is also used as calibration adapter.



Electrical installation

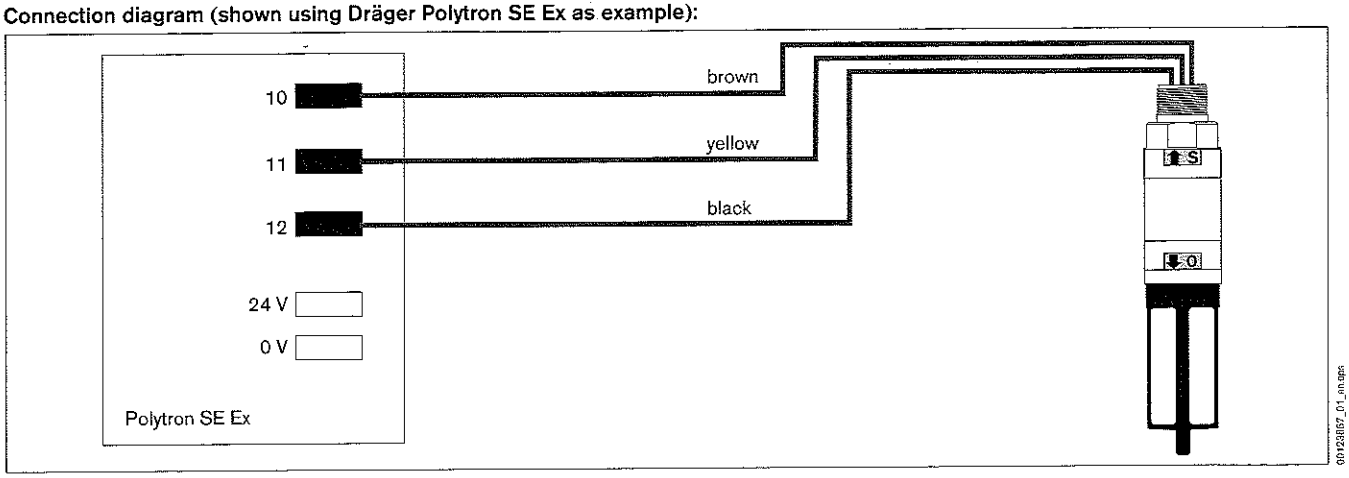
The entire wiring must correspond with applicable local regulations concerning the installation of electrical devices in potentially explosive atmospheres. In case of doubt, the official responsible authorities are to be consulted prior to installation of the device. We recommend a three-core, screened connection cable (mesh wire shield with a shielding factor of ≥80 %).

Attention:
Earth leakages on two phases can cause EMC problems. To avoid these problems, the cable screen may only be connected to earth potential on one side (either at the central unit or at the gas sensor). In most cases we recommend connecting the cable screen to the PE terminal of the junction box instead of connecting it to the central unit.

- If the corresponding connection is available: Electrically connect the junction box with earth.
- For installation in protection pipe: cast protection pipe seals and allow to harden.
- Do not connect gas sensor to the power supply before the wiring is complete and has been tested.

The gas sensor is compatible with practically any commercially available pellistor central unit. Ensure correct polarity when connecting the gas sensor.

Connection diagram (shown using Dräger Polytron SE Ex as example):



Colour Code of the Connection Leads at the Gas Sensor:

brown = + constant current mode (recommended): 200 to 400 mA DC; constant voltage mode (max. cable length 5 m): 2 to 5 V DC

black = – (common reference potential)

yellow = output signal (gas-dependent medium potential of the emulated half bridge)

- The power leads must have a sufficiently low resistance to ensure the correct supply voltage at the gas sensor.
- To keep cable losses to a minimum, we recommend setting the constant current as low as possible at the central unit.
- In voltage mode, unequal lead resistances can lead to a deviation between the output signal of the gas sensor and the gas concentration displayed by the central unit as well as to a periodic fluctuation of the output signal. In this case, sensor signal and central unit display must be alined as described in the Instructions for Use under "display measured gas". Common central units are equipped with standard low-pass filters (with a typical time constant of 10 seconds) which usually smoothen the periodic fluctuations of output signals.

Commissioning of the System

The DrägerSensor IR infrared gas sensor is preconfigured and ready for use after installation.

- To avoid false alarms, the alarm call to the central unit is to be deactivated.
- Connect the system to the electric power supply. The gas sensor will run a self test and will then operate automatically using the preset calibration and target gas category it was delivered with. The output signal of the sensor is undifined when starting up (<250 ms). For the duration of the self test (approx. 10 seconds), a signal which depends on the central unit calibration of approx. –10 %LEL is issued.
- Wait for the running-in period of one minute to expire. No settings can be changed during this phase.
- Check zero calibration, see Instructions for Use.
- Check if the factory-preset selection of of the target gas category matches the intended use of the gas sensor – see Instructions for Use.
- Check span calibration – see Instructions for Use.
- Check signal transmission to central unit and alarm activation.
- Reactivate the alarm call to put the system back to normal operating state.

Technical Data (Extract)

standard operating range / target gas category	0 to 100 %LEL / methane, propane, ethylene
output signal	45 to 55 % of the supply voltage (half bridge emulation)
supply / power consumption	200 to 400 mA DC or 2 to 5 V DC / ≤1 W
connecting thread	M25x1.5 or 3/4" NPT
environmental operating ranges	–40 to 65 °C, 700 to 1300 hPa, 0 to 100 % relative humidity
environmental storage ranges	–40 to 70 °C, 700 to 1300 hPa, 0 to 100 % relative humidity, non-condensing
IP rating	IP 67

– For approvals, measuring technique characteristics and cross sensitivities, see Instructions for Use.

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