Dräger Polytron® 8100 EC
Detection of toxic gases and oxygen

The Polytron® 8100 EC is Dräger’s top of the line explosion-proof transmitter for the detection of toxic gases or oxygen. It uses a high performance plug and play electrochemical DrägerSensor® to detect a specific gas. Besides having a 3-wire 4 to 20 mA analogue output with relays, it also offers Modbus and Fieldbus protocol making it compatible with most control systems.
Benefits

**Durable, intelligent and sensitive – the DrägerSensor®**

With unique electrochemical DrägerSensors, Polytron 8100 can detect over 100 toxic gases and oxygen. These long life sensors provide continuous detection even under the harshest conditions. DrägerSensors offer the industry's widest temperature and humidity range between -40°C to +65°C (-40°F to +150°F). The built-in memory contains all calibration and configuration information: therefore the sensor ships pre calibrated and is ready for immediate operation. An intelligent sensor self-test function allows for predictive maintenance. The intrinsically safe connection of the sensor eliminates the need for a flame arrestor, giving you faster response times and higher sensitivity.

**Easy device management via digital communication**

The Dräger Polytron 8100 is equipped with digital interfaces allowing for quick and easy remote interrogation of the transmitter's state. Integration with existing asset management systems such as PACTware™ is possible via DTM.

In addition to the common HART® communication system, the fieldbus interfaces with PROFIBUS® PA, FOUNDATION fieldbus™ H1, and Modbus RTU are also available.

**Same design, same operating principle**

The Dräger Polytron 8100 belongs to the Polytron 8000 series. All transmitters in this series have the same design and user interface. This allows for uniform operation with reduced training and maintenance requirements. The large graphic backlit display shows status information clearly and in an easy to use format. The measured gas concentration, selected gas type, and measuring unit are displayed during normal operation. Colored LEDs (green, yellow and red) provide additional alarm and status information.

The Polytron 8100 is operated by means of a magnetic wand over contact surfaces.

**Three relays for controlling external equipment**

Upon request, the Dräger Polytron 8100 can also be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two arbitrarily adjustable concentration alarms and one fault alarm. Audio alarms, signal lights or similar devices can thus be controlled locally without an additional cable between the transmitter and central controller.

**Safe, robust housing for every application**

Polytron 8100 features a Class I, Div. 1 rated explosion proof enclosure made from aluminium or stainless steel, making it suitable for a wide range of environmental conditions. A protection type “e” version includes a convenient docking station which allows installation in hazardous atmospheres without running conduit (where approved).
Benefits

Remote sensor option does not require conduit

The optional remote sensor enclosure enables the sensor to be installed away from the transmitter. This makes it easy to place the sensor close to a potential gas cloud in an inaccessible location while keeping the display at eye level. Because the sensor is connected to the transmitter through an intrinsically safe port, this eliminates the need to run conduit for mounting a remote sensor. And to make things even easier, Dräger includes cabling up to 100 feet (30 metres) long. The intrinsically safe connection also allows ‘hot swaps’ of the sensor in a hazardous atmosphere without removing power or declassifying the area.

More functions through dongles

With different software dongles, additional functions can be added to the Polytron 8100. The data logger dongle comes as standard and continuously records gas readings and events. A sensor test dongle is available for additional sensor self-test functionality. A third dongle is available for advanced sensor diagnosis. These dongles indicate the sensor’s vitality, giving you an estimate of the sensor’s remaining service life.

System Components

Dräger REGARD® 3900

The Dräger REGARD® 3900 is a standalone, self contained control system for the detection of Toxic, Oxygen and Ex hazards. The control system is fully configurable between 1 and 16 channels, depending upon the type and quantity of input/output boards installed.
System Components

Dräger REGARD®-1

The Dräger REGARD®-1 is a standalone, self contained single channel control system for the detection of Toxic, Oxygen and Ex hazards. The control system is fully configurable for a single input from either a 4 to 20 mA transmitter or a Dräger Polytron® SE Ex measuring head.

Accessories

Docking station

The docking station is included with all transmitters in the Polytron® 5000 and Polytron® 8000 series for protection type “e”, increased safety. This also facilitates pre-assembly.

Splash guard

The Splash guard protects the sensor against splash water and dirt.
Accessories

**Duct mount kit**

The duct mount kit enables gas monitoring inside ventilation ducts while keeping the transmitter outside.
## Technical Data

### Dräger Polytron® 8100 EC

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Explosion proof / flameproof enclosed transmitter (&quot;d&quot;) or combined with increased safety (&quot;d/e&quot;)</td>
</tr>
<tr>
<td><strong>Gases</strong></td>
<td>Toxic gases and oxygen, dependent on the sensor used</td>
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<tr>
<td><strong>Measuring ranges</strong></td>
<td>Customized adjustment, see sensor data sheet</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>Backlit graphic LCD; 3 Status LEDs (green/yellow/red)</td>
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<tr>
<td><strong>Electrical data - Signal output analogue</strong></td>
<td>Normal operation: 4 to 20 mA; Maintenance: Constant 3.4 mA or 4 mA ±1 mA 1 Hz modulation; (adjustable)</td>
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<td></td>
<td>Fault: &lt; 1.2 mA</td>
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<tr>
<td><strong>Signal output digital</strong></td>
<td>HART®, PROFIBUS PA, FOUNDATION fieldbus™ H1 and Modbus RTU</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>10 to 30 V DC, 3-wire</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>w/o relay, non-remote: 80 mA at 24 V; w/ relay, remote: 100 mA at 24 V</td>
</tr>
<tr>
<td><strong>Relay specification (option)</strong></td>
<td>2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound</td>
</tr>
<tr>
<td><strong>Environmental conditions</strong></td>
<td><strong>Temperature</strong>: -40 to 65°C (-40 to 149°F) without relay; -40 to 65°C (-40 to 149°F) with relay</td>
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<tr>
<td></td>
<td><strong>Pressure</strong>: 20.7 to 38.4 inch Hg / 700 to 1,300 mbar</td>
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<tr>
<td><strong>Humidity</strong></td>
<td>0 to 100% r. h., non-condensing</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td>Transmitter housing: Epoxy coated copper-free aluminium or stainless steel SS316 L; Sensor housing: Polyamide; Enclosure protection type: NEMA 4X &amp; 7, IP65/66/67</td>
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<tr>
<td><strong>Cable entry point</strong></td>
<td>3/4&quot; NPT threaded holes or M20 cable gland</td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D), approx.</strong></td>
<td>w/o docking station: 11.0&quot; x 5.9&quot; x 5.1&quot; / 280 x 150 x 130 mm; w/ docking station: 11.0&quot; x 7.1&quot; x 7.5&quot; / 280 x 180 x 190 mm</td>
</tr>
<tr>
<td><strong>Weight, approx.</strong></td>
<td>w/o docking station Aluminium: 6.6 lbs / 3.0 kg; w/o docking station SS316 L: 11.0 lbs / 5.0 kg; w/ docking station Aluminium: 10.0 lbs / 4.5 kg; w/ docking station SS316 L: 14.3 lbs / 6.5 kg</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td><strong>UL</strong></td>
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<tr>
<td></td>
<td>Class I, Div 1, Groups A, B, C, D; Class II, Div 1, Groups E, F, G; Class I, Zone 1, Group IIC; T-Code T6/T4</td>
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<tr>
<td><strong>CSA</strong></td>
<td>Class I, Div 1, Groups A, B, C, D; Class II, Div 1, Groups E, F, G; Class I, Zone 1, Group IIC; T-Code T6/T4</td>
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<td><strong>IECEx</strong></td>
<td>4-20-mA HART® &amp; Modbus</td>
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<td></td>
<td>Ex db [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; &quot;d&quot; version; Ex db eb [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; &quot;e&quot; version; Ex tb [ia] IIC T135°C Db</td>
</tr>
<tr>
<td><strong>PROFIBUS® &amp; FF</strong></td>
<td>Ex db ia [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; &quot;d&quot; version; Ex db eb ia [ia] IIC T6/T4 Gb, -40 ≤</td>
</tr>
</tbody>
</table>
Technical Data

ATEX 4-20-mA HART® & Modbus

- Ta ≤ +40/+70°C; “e” version;
- Ex tb [ia] IIIC T135°C Db
- II 2G Ex db [ia] IIIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “d” version
- II 2G Ex db eb [ia] IIIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “e” version
- II 2D Ex tb [ia] IIIC T135°C Db

PROFIBUS® & FF

- II 2G Ex db ia [ia] IIIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “d” version
- II 2G Ex db eb ia [ia] IIIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “e” version
- II 2D Ex tb [ia] IIIC T135°C Db

CE markings

- ATEX (Directive 2014/34/EU)
- Electromagnetic Compatibility (Directive 2014/30/EU)
- Low Voltage (Directive 2014/35/EU)

Shipping approvals (for oxygen sensors only)

- DNV GL, ABS
- Certificate no. 61549/ 50 – 13 HH
- Certificate no. 12031 – 10 HH
- Certificate no. BVS 13 ATEX G 001 X
- PFG 14 G 001X

Performance approval (for oxygen sensors only)

- SIL 2 certified by TÜV Sued
- Certificate no. Z10 1207 53474 013

* All docking station versions are only ATEX/IECEx approved

Ordering Information

Dräger Polytron® 8100 EC

- Dräger Polytron® 8100 EC d A 4-20/HART® 83 44 403
- Dräger Polytron® 8100 EC d A 4-20/HART® relay 83 44 404
- Dräger Polytron® 8100 EC e A 4-20/HART® (incl. Docking Station) 83 44 421
- Dräger Polytron® 8100 EC e A 4-20/HART® relay (incl. Docking Station) 83 44 422
- Dräger Polytron® 8100 EC d S 4-20/HART® 83 44 412
- Dräger Polytron® 8100 EC d S 4-20/HART® Relay 83 44 413
- Dräger Polytron® 8xx0 Kit (Custom configuration e. g. stainless steel housing) 83 44 800

Accessories

- Magnetic wand 45 44 101
- Sensor Test Dongle 83 17 619
- Diagnostic Dongle 83 17 860
- Pipe mount bracket 45 44 198
- Duct mount kit 68 12 725
- Duct mount adapter for remote EC sensing head 83 17 617
- Remote adapter RS stainless steel 83 23 404
- EC Sensing Head Remote w/ mount kit 68 12 684
- IR Connection Kit Polytron® 5000/8000 45 44 197
- PolySoft 83 23 405
- PolySoft premium 83 23 411
### Ordering Information

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<thead>
<tr>
<th>Item Description</th>
<th>Code</th>
<th>Unit</th>
<th>Quantity</th>
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<tr>
<td>Connection cable w/ plug for Remote EC</td>
<td>83 23 305</td>
<td>16 ft/5 m</td>
<td></td>
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<tr>
<td>Sensing Head</td>
<td>83 23 315</td>
<td>49 ft/15 m</td>
<td></td>
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<tr>
<td></td>
<td>83 23 330</td>
<td>98 ft/30 m</td>
<td></td>
</tr>
<tr>
<td>Splash guard</td>
<td>68 12 510</td>
<td></td>
<td></td>
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<tr>
<td>Gassing adapter</td>
<td>45 09 314</td>
<td>PE incl. tubing</td>
<td></td>
</tr>
<tr>
<td>Calibration adapter Viton®</td>
<td>68 10 536</td>
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</tr>
</tbody>
</table>

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FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™.
PROFIBUS® is a registered trademark of PROFIBUS and PROFINET International (PI).
PACTware™ is a registered trademark of Pepperl+Fuchs GmbH.
Viton® is a registered trademark of the DuPont company.

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