Dräger Polytron® 8100 EC
Detection of toxic gases and vapors

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 a 3 wire 4 to 20 mA analog output with relays, it also offers Modbus and Fieldbus protocol making it compatible with most control systems.

Dräger. Technology for Life®

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 are 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.

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

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 Dräger Polytron 8100 can be supplied with three integrated relays. This enables you to use it as an independent gas detection system with two user adjustable concentration alarms and one fault alarm.

Polytron 8100 features a Class I, Div. 1 rated explosion proof enclosure made from aluminum or stainless steel.

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.

Benefits

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 aluminum 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).

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 meters) 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 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

D-27777-2009

Dräger REGARD® 3900

The Dräger REGARD® 3900 is a standalone control system for the detection of toxic gases, oxygen levels, 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.

ST-335-2004

Dräger REGARD®-1

The Dräger REGARD®-1 is a standalone single-channel control system for the detection of toxic and Ex hazards and oxygen levels. 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

D-85369-2013

Splash guard

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

Accessories

D-85345-2013

Duct mount kit

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

D-85363-2013

Magnetic Wand

The magnetic wand is used to access and navigate the menu on the Polytron explosion proof detectors.

D-85362-2013

Pipe Mount Kit

The pipe mount kit is used to mount the Polytron explosion proof transmitters on pipes if there is no room to mount them elsewhere or if the pipes are going to be the source of gas leaks.

Technical Data

Dräger Polytron® 8100 EC

Type	Explosion proof / flameproof enclosed transmitter (“d”) or combined with increased safety (“d/e”)		
Gases	Toxic gases and oxygen, dependent on the sensor used		
Measuring ranges	Customized adjustment, see sensor data sheet		
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)		
Electrical data	Signal output analog	Normal operation	4 to 20 mA
		Maintenance	Constant 3.4 mA or 4 mA ±1 mA 1 Hz modulation; (adjustable)
		Fault	< 1.2 mA
	Signal output digital	HART®, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU	
	Power supply	10 to 30 V DC, 3-wire	
	Power consumption	w/o relay, non-remote	80 mA at 24 V
		w/ relay, remote	100 mA at 24 V
	Relay specification (option)	2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound	
Environmental conditions (see sensor data sheet)	Temperature	-40 to 65°C (-40 to 149°F) without relay -40 to 65°C (-40 to 149°F) with relay	
	Pressure	20.7 to 38.4 inch Hg / 700 to 1,300 mbar	
	Humidity	0 to 100% r. h., non-condensing	
Housing	Transmitter housing	Epoxy coated copper-free aluminum or stainless steel SS316 L	
	Sensor housing	Polyamide	
	Enclosure protection type	NEMA 4X & 7, IP65/66/67	
	Cable entry point	3/4" NPT threaded holes or M20 cable gland	
	Dimensions (H x W x D), approx.	w/o docking station	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm
		w/ docking station	11.0" x 7.1" x 7.5" / 280 x 180 x 190 mm
	Weight, approx.	w/o docking station Aluminum	6.6 lbs / 3.0 kg
		w/o docking station SS316 L	11.0 lbs / 5.0 kg
		w/ docking station Aluminum	10.0 lbs / 4.5 kg
		w/ docking station SS316 L	14,3 lbs / 6.5 kg

Approvals*

UL		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
CSA		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
IECEx	4-20-mA HART®	Ex db [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “d” version Ex db e [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “e” version; Ex tb [ia] IIIC T135°C Db
	PROFIBUS® & FF	Ex db ia [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “d” version Ex db e ia [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “e” version;

Technical Data

		Ex tb [ia] IIIC T135°C Db
ATEX	4-20-mA HART®	II 2G Ex db [ia] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “d” version II 2G Ex db e [ia] IIC 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] IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+70°C; “d” version II 2G Ex db e ia [ia] IIC 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
MED approval B (for oxygen sensors only)		Certificate no. 61549/ 50 – 13 HH
MED approval D (for oxygen sensors only)		Certificate no. 12031 – 10 HH
Performance approval (for oxygen sensors only)		Certificate no. BVS 13 ATEX G 001 X PFG 14 G 001X
SIL 2 certified by TUEV 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

Connection cable w/ plug for Remote EC	16 ft / 5 m	83 23 305
Sensing Head	49 ft / 15 m	83 23 315
	98 ft / 30 m	83 23 330
Splash guard		68 12 510
Gassing adapder	PE incl. tubing	45 09 314
Calibration adapter Viton®		68 10 536

EC Sensors (Maximum Range, Field Adjustable)	
DrägerSensor® AC Acidic Compounds 0–30 ppm	68 10 595
DrägerSensor® Cl2 Chlorine 0-50 ppm	68 09 665
DrägerSensor® CO Carbon Monoxide 0-1,000 ppm	68 09 605
DrägerSensor® CO LS Carbon Monoxide 0–5,000 ppm	68 09 620
DrägerSensor® CO LH Carbon Monoxide 0–300 ppm	68 12 570
DrägerSensor® $COCl_2$ Phosgene 0–20 ppm	68 09 930
DrägerSensor® H_2 Hydrogen 0–3,000 ppm	68 09 685
DrägerSensor® H_2O_2 HC Hydrogen Peroxide 0–7,000 ppm	68 09 675
DrägerSensor® H_2O_2 LC Hydrogen Peroxide 0–300 ppm	68 09 705
DrägerSensor® H_2S Hydrogen Sulfide 0–100 ppm	68 10 435
DrägerSensor® H_2S HC Hydrogen Sulfide 0–1,000 ppm	68 09 710
DrägerSensor® H_2S LC Hydrogen Sulfide 0–100 ppm	68 09 610
DrägerSensor® HCl Hydrogen Chloride 0–100 ppm	68 09 640
DrägerSensor® HCN Hydrogen Cyanide 0-50 ppm	68 09 650
DrägerSensor® HCN LC Hydrogen Cyanide 0–50 ppm	68 13 200
DrägerSensor® PH_3/AsH_3 Phosphine/Arsine 0–10 ppm	68 09 695
DrägerSensor® Hydride 0–20 ppm	68 09 635
DrägerSensor® Hydride SC 0–1 ppm	68 09 980
DrägerSensor® N_2H_4 Hydrazine 0–5 ppm	68 10 180
DrägerSensor® NH_3 HC Ammonia 0–1,000 ppm	68 09 645
DrägerSensor® NH_3 LC Ammonia 0–300 ppm	68 09 680
DrägerSensor® NH_3 TL Ammonia 0–300 ppm	68 13 095
DrägerSensor® NH_3 FL Ammonia 0–300 ppm	68 13 260
DrägerSensor® NO Nitric Oxide 0–200 ppm	68 09 625
DrägerSensor® NO_2 Nitrogen Dioxide 0–100 ppm	68 09 655
DrägerSensor® NO_2 LC Nitrogen Dioxide 0–20 ppm	68 13 205
DrägerSensor® O_2 Oxygen 0–100% Vol.	68 09 720
DrägerSensor® O_2 LS Oxygen 0–25% Vol.	68 09 630
DrägerSensor® O3 Ozone 0–5 ppm	68 10 290
DrägerSensor® OV_1 Organic Vapors 0–200 ppm	68 10 740
DrägerSensor® OV_2 Organic Vapors 0–100 ppm	68 10 745
DrägerSensor® SO_2 Sulfur Dioxide 0–100 ppm	68 09 660