



Product Catalog 2024

Fixed Gas Detection

Dräger

Technology for Life



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Welcome

Dräger is a leading international company in the fields of medical and safety technology. Founded in Lübeck in 1889, Dräger has grown into a worldwide enterprise in its fifth generation as a family-run business. Our long-term success is predicated on a value-oriented corporate culture with four central strengths: close collaboration with our customers, the expertise of our employees, continuous innovation and outstanding quality.

“Technology for Life” is our guiding principle. Wherever they are deployed – in clinical settings, industry, mining or emergency services – Dräger products protect, support and save lives.

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Whilst every care has been taken in the compilation of this price list, and every attempt made to present up-to-date and accurate information, we cannot guarantee that inaccuracies will not occur. Dräger reserves the right to make any changes without providing prior notification.

Flammable Gas Detection



More than the sum of their components

Our measuring technology monitors your production locations, warehouses and workplaces and warns you against imminent gas hazards and flames. In addition to a uniquely wide range of sensors, measuring instruments and technical components we offer expert planning, maintenance, service and training.

Dräger sensors measure more than 400 flammable or toxic gases and vapors as well as oxygen in measuring ranges from Vol.-% through %-LEL to ppb. We can cover every required measuring technology with our own products: Infrared absorption, electrochemical reaction and catalytic bead to detect hazardous gas emissions. However, our portfolio also includes various technologies for flame detection.

Third party products such as horns, warning lights and fans are compatible with our components and integrated by us into the system. Our gas monitoring systems are of modular design, making your safety system future-proof and your investment pay off for years to come. New products are designed with compatibility in mind, meaning systems can normally be extended, modified or modernised at any time using existing components.

Controllers

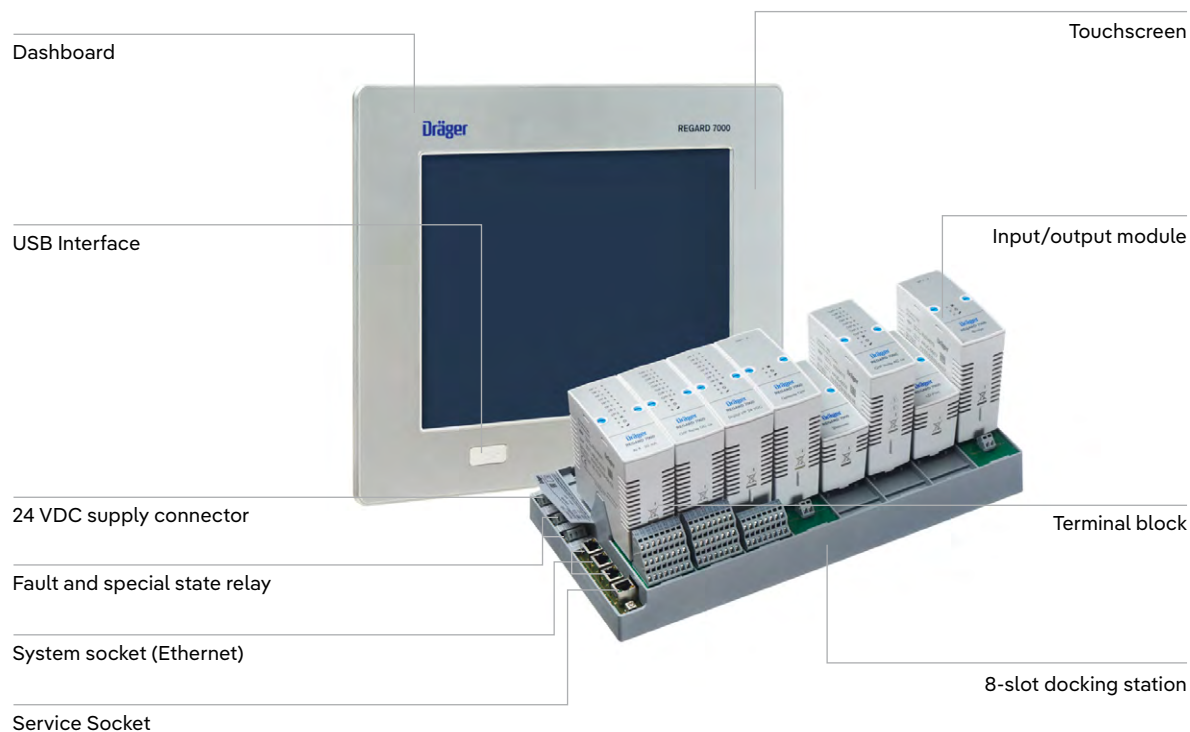
Controllers

REGARD® 7000	6
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Controllers

Dräger REGARD® 7000 Control System

When you need to monitor and analyze a number of various gases and vapors, the Dräger REGARD® 7000 is a modular and highly expandable analysis tool. Suitable for gas warning systems with various levels of complexity and numbers of transmitters, the Dräger REGARD® 7000 is exceptionally reliable and efficient. An additional benefit is the system's backward compatibility with legacy REGARD® controllers.



Controllers

Product	Description	Packaging unit/type	Order No.
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Dräger REGARD® 7000

Dräger REGARD® 7000			
Dräger REGARD® 7000 Advanced Dashboard 6HE		1 / box	8323821
Dräger REGARD® 7000 Advanced Dashboard™		1 / box	8322345
Dräger REGARD® 7000 Dockingstation 8-slot		1 / box	8322286
Dräger REGARD® 7000 4-20 mA Input Module		1 / box	8324001
Dräger REGARD® 7000 Digital Input Module		1 / box	8324003
Dräger REGARD® 7000 Bridge Module		1 / box	8324870
Dräger REGARD® 7000 Relay Module 24 V DC		1 / box	8323250
Dräger REGARD® 7000 Relay Module 240 V AC		1 / box	8324010
Dräger REGARD® 7000 Relay Module 24 V DC complex		1 / box	8324874
Dräger REGARD® 7000 Relay Module 240 V AC complex		1 / box	8324875
Dräger REGARD® 7000 Slotcover		1 / box	8323812
Dräger REGARD® 7000 Terminal Block 24-pin AC		1 / box	8324016
Dräger REGARD® 7000 Terminal Block 24-pin DC		1 / box	8324020
Dräger REGARD® 7000 Terminal Block 2-pin		1 / box	8324871
Dräger REGARD® 7000 Terminal Block 16-pin		1 / box	8324017
Dräger REGARD® 7000 4-20 mA Input Modul c/w HART®		1 / box	8327250
Dräger REGARD® 7000 Modbus RTU Gateway Set			8324872
Dräger REGARD® 7000 Long Distance Gateway Set			8323815

Technical Data

Environmental conditions		
	Dräger REGARD® 7000 (without Dashboard)	Dashboard
Temperature	0 to 55 °C / 32 to 131 °F (during operation)	0 to 50 °C / 32 to 122 °F (during operation)
	-40 to +65 °C / -40 to 149 °F (in storage)	-20 to +60 °C / -4 to 140 °F (in storage)
Humidity	5 to 95% RH, non-condensing	20 to 90% RH, non-condensing (during operation)
		5 to 90% RH, non-condensing (in storage)
Pressure	700 to 1,300 hPa	700 to 1,300 hPa
Height	max. 2,000 m (6,561 ft) above sea level (only applies to Relay Module 240 V AC)	max. 3,000 m (9,842 ft) above sea level

Controllers

Technical Data

System reaction times

Transmission of measurement values and status information in Dräger REGARD® 7000	typically 1 s max. 3.3 s
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Setting times

t20	< 3s
t50	< 3s
t90	< 3s

The setting times are independent of the sample gas.

Time to measurement readiness

After switching on the Dräger REGARD® 7000 < 30 s

Dräger REGARD® 7000 Advanced Dashboard 6RU

Operating voltage	24 V (19.2 to 28.8 V) DC
Current draw	Typ. 1.0 A at 24 V DC
Dimensions	266 x 483 x 68 mm / 10.47 x 19.02 x 2.68" (H x W x D)
Weight	3,800 g / 8.16 lbs

Dräger REGARD® 7000 Advanced Dashboard PM

Operating voltage	24 V (19.2 to 28.8 V) DC
Current draw	Typ. 1.0 A at 24 V DC
Dimensions	286 x 347 x 68 mm / 11.26 x 13.66 x 2.68" (H x W x D)
Weight	3,700 g / 8.16 lbs

Dräger REGARD® 7000 Dockingstation 8-slot

Terminal clamps	Plug-in contacts for wire cross sections of 0.08 to 2.5 mm ²
Operating voltage	24 V (18 to 30 V) DC
Current draw:	Max. 22 A (independent of the number of installed modules and connected transmitters)
Power loss	Max. 15 W at 24 V
SFR output	Min. 3.3 V, 10 mA, max. 30 V, 2 A switching capacity; the SFR output must be protected against overload
SSR output	Min. 3.3 V, 10 mA, max. 30 V, 2 A switching capacity; the SSR output must be protected against overload
Number of modules per docking station	Max. 8
Dimensions	184 x 400 x 78 mm / 7.24 x 15.75 x 3.07" (H x W x D)
Weight	2,600 g / 5.73 lbs

Controllers

Technical Data

Dräger REGARD® 7000 4-20 mA Input Module

Number of input channels	Max. 8
Operating voltage	24 V (18 to 30 V) through docking station
Transmitter supply voltage	Typically 24 V, depending on the supply voltage of the docking station
Transmitter supply current	Max. 500 mA per channel, with max. 4 inputs occupied Max. 250 mA per channel, with 4 to 8 inputs occupied Total transmitter supply current max. 2 A
Voltage range for signal input	0 to 24 mA (short-circuit detection at 38 mA)
Measurement precision	$\pm 0.05 \text{ mA} \pm 0.002 \text{ mA/K}$ (0 to 4 mA) $\pm 1.25\% \pm 0.05\%/K$ (4 to 24 mA)
Current draw	Max. 2.1 A
Power loss	Max. 5 W at 24 V
Terminal block	24-pin, DC
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	265 g / 0.58 lbs

Dräger REGARD® 7000 4-20 mA Input Module c/w HART®

Number of input channels	Max. 8
Operating voltage	24 V (18 to 30 V) through docking station
Transmitter supply voltage	Typically 24 V, depending on the supply voltage of the docking station
Transmitter supply current	Max. 500 mA per channel, with max. 4 inputs occupied Max. 250 mA per channel, with 4 to 8 inputs occupied Total transmitter supply current max. 2 A
Voltage range for signal input	0 to 24 mA (short-circuit detection at 38 mA)
Measurement precision	$\pm 0.05 \text{ mA} \pm 0.002 \text{ mA/K}$ (0 to 4 mA) $\pm 1.25\% \pm 0.05\%/K$ (4 to 24 mA)
Current draw	Max. 2.1 A
Power loss	Max. 5 W at 24 V
Terminal block	24-pin, DC
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	265 g / 0.58 lbs

Controllers

Technical Data

Dräger REGARD® 7000 Digital Input Module

Number of input channels	Max. 8
Operating voltage	24 V (18 to 30 V) through docking station
Channel output voltage	Typically 24 V, depending on the supply voltage of the docking station
Supply current of the connected input elements	Max. 400 mA per channel, with max. 4 inputs occupied Max. 250 mA per channel, with 4 to 8 inputs occupied Total supply current max. 2 A
Standby current through EOL resistance	Configurable to 0 mA (line break detection switched off) and in the range of 5 to 400 mA
Switching threshold	Configurable in the range of 3 to 400 mA
Current draw	Max. 2.1 A
Power loss	Max. 5 W at 24 V
Terminal block	16-pin, DC
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	265 g / 0.58 lbs

Dräger REGARD® 7000 Gateway Module

Number of channels	1 channel, bidirectional; One gateway module always occupies one port in the overall system
Modbus RTU gateway and gateway module supply voltage	24 V (18 to 30 V) DC
Gateway module current draw	Typ. 160 mA at 24 V
Gateway module power loss	Max. 4 W at 24 V
Modbus RTU gateway current draw	Typ. 80 mA at 24 V
Modbus RTU gateway power loss	Max. 2.5 W at 24 V
Transmission rate	Adjustable 9,600 to 921,600 baud
Cable length between Dräger REGARD® 7000 Gateway O/P and Dräger Max. 5 m REGARD® 7000 Modbus RTU Gateway	
Cable type	STP (shielded twisted pair), e.g. LAPP Unitronic® Bus LD
Cable length RS-485 side	<57,600 baud max. 1,200 m
	<230,400 baud max. 500 m
	<921,600 baud max. 120 m
Terminal block	2-pin
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	265 g / 0.58 lbs

Galvanic isolation between Dräger REGARD® 7000 and field-bus side through Modbus RTU Gateway

Controllers

Technical Data

Dräger REGARD® 7000 Modbus RTU Gateway

Dimensions	116 x 23 x 115 mm / 4.57 x 0.91 x 4.53" (H x W x D)
Weight	130 g / 0.29 lbs

Dräger REGARD® 7000 Bridge Module

Current draw	Typ. 160 mA at 24 V
Power loss	Max. 4 W at 24 V
Number of channels	1 channel, bidirectional; One bridge module always occupies 99 ports in the overall system
Transmission rate	4,800 baud
Cable length	Max. 100 m
Cable type	STP (shielded twisted pair), e.g. LAPP Unitronic® Bus LD
Terminal block	2-pin
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	265 g / 0.58 lbs

Dräger REGARD® 7000 Relay Module 240 V AC/240 V AC complex

Number of output relays	8, each with one potential-free changeover
Switching voltage	110 to 240 V AC
Switching current	10 mA to 2 A; cosine phi $\geq$ 0.4
Power consumption	Max. 100 mA (no relays activated) Max. 200 mA (8 relays activated)
Power loss	Max. 5 W at 24 V
Update rate of switch outputs	0.5 s
Terminal block	24-pin, 240 V AC
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	340 g / 0.75 lbs

Dräger REGARD® 7000 Relay Module 24 V DC/24 V DC complex

Number of output relays	8, each with one switch contact
Switching voltage	3.3 to 24 V DC
Switching current	10 mA to 2 A
Power consumption	Max. 100 mA (no relays activated) Max. 200 mA (8 relays activated)
Power loss	5 W at 24 V
Update rate of switch outputs	0.5 s
Terminal block	24-pin, 24 V
Dimensions	110 x 46 x 130 mm / 4.33 x 1.81 x 5.12" (H x W x D)
Weight	340 g / 0.75 lbs

Controllers

Technical Data

Dräger REGARD® 7000 Slotcover

Dimensions 110 x 46 x 85 mm / 4.33 x 1.81 x 3.35" (H x W x D)

Weight 115 g / 0.25 lbs

Dräger REGARD® 7000 Terminal Block

Dimensions 69 x 44 x 44 mm / 2.72 x 1.73 x 1.73" (H x W x D)

Weight 53 g / 0.12 lbs

Dräger REGARD® 7000 Ethernet to DSL Converter

Dimensions 99 x 35 x 115 mm / 3.9 x 1.38 x 4.53" (H x W x D)

Weight 185 g / 0.41 lbs

Dräger REGARD® 7000 Long Distance Gateway

Supply voltage 24 V (18 to 30 V) DC

Long distance gateway port current draw Typ. 4 mA at 24 V

Long distance gateway port power loss Max. <0.1 W at 24 V

Converter current draw Typ. <180 mA per converter at 24 V

Converter power loss Max. 5 W at 24 V per converter

Transmission rate 5 MBit/s

Galvanic isolation Ethernet to DSL

Transmission distance Up to 3,000 m (9,843 ft), depending on wire cross-section and interference factors

Dimensions 110 x 46 x 85 mm / 4.33 x 1.81 x 5.12" (H x W x D)

Weight 115 g / 0.25 lbs

Approvals

ATEX Ex II(I)GD

SIL SIL 2

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

HART® is a registered trademark of the HART® Communication Foundation

Unitronic® is a registered trademark of Lapp GmbH

Controllers

Dräger REGARD® 3000 Control System

Monitor various gases and vapors with the modular Dräger REGARD® 3000 control system. Its multi-colored light signals the status of your gas detection system. The controller allows for up to three I/O modules: Analog Input, Relay Output, and Modbus Gateway. You can monitor up to 4 analog transmitters and control up to 8 relays.

Dräger REGARD®
3000 Display unit

Dräger REGARD® 3000
Touchscreen



Dräger REGARD® 3000
Status light

IP 65 rated enclosure

Controllers

Product	Description	Packaging unit/type	Order No.
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Dräger REGARD® 3000

Configure your own REGARD® 3000 with the components below that can easily be assembled in the field.

As a minimum you must order a base unit, display unit, and 4-20mA input module.

The remaining 2 slots must either be used with slot covers or with 1 relay module and 1 gateway module.

Dräger REGARD® 3000			
Dräger REGARD® 3000 Base unit black			3705684
Dräger REGARD® 3000 Base unit grey			3706357
Dräger REGARD® 3000 Display unit black			3709719
Dräger REGARD® 3000 Display unit grey			3705685
Dräger REGARD® 3000/5000 Slot cover			3705672
Dräger REGARD® 3000 4 – 20mA Input Module 2Ch			3705680
Dräger REGARD® 3000 4 – 20mA Input Module 2Ch			3705680
Dräger REGARD® 3000/5000 4 – 20mA Input Module 4Ch			3705687
Dräger REGARD® 3000/5000 Relay Module 8Ch			3705688
Dräger REGARD® 3000/5000 MB RTU Gateway Module			3705693
Dräger REGARD® 3000/5000 MB TCP Gateway Module			3705694
Dräger REGARD® 3000/5000 PC-Software Key			3709533
Preassembled REGARD® 3000			
REGARD® 3000 Complete Set			
– - Base and display unit black			
– - 4-20 mA Input Module 4Ch			
– - Relay Module 8Ch			
– - ModBus RTU Gateway Module			
			NA10792

Technical Data

Dräger REGARD® 3000	
Capacity	2 or 4 channels of toxic, oxygen, and combustible gas detection transmitters with user definable measuring ranges, tag names, and engineering units. Compatible with any 4-20 mA transmitter.
Display	7" Diagonal High Definition Touchscreen Color Display Full-text diagnostics for all Dräger HART enabled transmitters. Identifies analog diagnostic signals from any 4-20mA device
User Interface	Automatic configuration of default parameters for Dräger transmitters
	Warning of HART transmitter configuration mismatch with controller configuration
	List of all transmitters with values, status information, and tags
	Password protected menu with multiple user levels
	Optional PC configuration software for backing up and restoring configuration on a PC or network drive HART multiplexer tunnel for complete configuration of Dräger HART transmitters using optional Dräger Polysoft® PC software

Controllers

Inputs	2 or 3 wire 4-20 mA transmitters with or without HART
	Max 500 mA per channel, 2 A / 48 W supply per module
	262 Ohm load resistance
Relay Outputs	Remote alarm acknowledge and remote inhibit digital inputs
	4 common relays: special states, system faults, pre-alarm, and master alarm
	Optional relay module with 4 or 8 SPDT 2 A AC/DC configurable relays with up to 8 different alarm levels per input channel
	Single, common, or voting alarm configuration
	Dry contacts NO/NC/C energized/de-energized, latching/unlatching, time delay
	100 to 240 V AC up to 2 A; 5 to 30 V DC from 10 mA to 2 A
Alarm Devices	Status LEDs around the entire circumference of the enclosure
	Blue LEDs indicates normal operation
	Yellow LEDs indicate a malfunction with different flash sequences
	Yellow LEDs indicate a malfunction with different flash sequences
Digital Communication	>85 dB @ 1 m piezo horn indicates different alarm levels
	Optional RS485 Modbus RTU or Modbus TCP/IP output module
	2 ethernet outputs for remote visualization panels
	1 ethernet output to Regard 7000 controller
Enclosure	1 ethernet output for Regard Configurator PC software
	Polycarbonate ABS rated IP65, NEMA 4X (pending)
Size (H x W x D)	11.8" x 12.0" x 5.9" (300 x 305 x 150 mm)
Weight	10.4 lb (4.7 kg) with 3 modules
Ports	13 M20 cable entries
Power Supply	Internal: 90-264 VAC 50-60 Hz 120 W, 24 VDC
	External: 24 VDC 2A, usually 1A depending on connected transmitters
Ambient Conditions	Temperature (during operation) -20 ... +55 °C
	Temperature (in storage) -30 ... +65 °C
	Humidity 5 ... 90 % r.h., non-condensing
	Pressure 700 ... 1300 hPa
Approvals	Power Supply:
	UL 62368-1, CAN/CSA-C22.2 No. 62368-1-14
	UL 60950-1, CAN/CSA-C22.2 No. 60950-1-07
	47 CFR FCC Part 15 Subpart B: 2016
	SIL 2 Functional Safety EN 50402, IEC 61508-3
	2014/30/EU: EN 50270:2015 (type 2)
Performance Approval	2014/35/EU: EN 61010-1:2010 + AI:2019
	ATEX 2014/34/EU: EN 60079-29-1:2016, EN 50104:2019, EN 50271:2018

Controllers

Dräger REGARD® 3920 Control System

The Dräger REGARD® 3920 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.

Display shows four channels at same time

Control buttons



Status indicators for Input channels

Controllers

Product	Description	Packaging unit/type	Order No.
Dräger REGARD® 3920			
Dräger REGARD® 3900 Basic Unit		1 / box	4208780
Dräger REGARD® 3920 Basic Unit		1 / box	4208850
Dräger REGARD® 3900/3910/3920 4-20 Module		1 / box	4208782
Dräger REGARD® 3900/3910/3920 Relay Module		1 / box	4208784
Dräger REGARD® 3900/3910/3920 4-20-mA Repeat Output Board		1 / box	4208797
Dräger REGARD® 3920 Includes 1 input mod, 2.5 amp Power supply		1 / box	SC05751
Dräger REGARD® 3920 Includes 2 input mod, 5 amp Power supply		1 / box	SC05752
Dräger REGARD® 3920 Includes 3 input mod, 8 amp Power supply		1 / box	SC05753
Dräger REGARD® 3920 Includes 4 input mod, 8 amp Power supply		1 / box	SC05754
Dräger REGARD® 3900 Includes 1 input mod, 2.5 amp Power supply		1 / box	SC05651
Dräger REGARD® 3900 Includes 4 input mod, 8 amp Power supply		1 / box	SC05654
Dräger REGARD® 3900/3920 Configuration Software		1 / box	SC05655
Dräger REGARD® 39x0 Mounting Bracket		1 / box	4208796
Dräger REGARD® 3900 RS232/CAN interface		1 / box	4208785
Power supply for up to 4 channels, 2.5A		1 / box	SC04521
Power supply for up to 8 channels, 5A		1 / box	SC04522
Power supply for up to 12 channels, 10A		1 / box	SC04523
Power supply for up to 12 channels, 10A		1 / box	SC04523
Power supply, 20A		1 / box	SC05228
Dräger REGARD® 39x0 Modbus RTU Gateway		1 / box	SC00083
Dräger REGARD® 39x0 Modbus TCP/IP Gateway		1 / box	SD13037
Dräger REGARD® 39x0 Gateway cable		1 / box	SC00085

Controllers

Technical Data

Type	Control unit for location in a non-hazardous area	
Gas and ranges	Toxic, oxygen and combustible gases with user definable measuring ranges. Refer to transmitter type for ranges, name and engineering units. All configurations by Laptop computer.	
Inputs	2 or 3 wire 4-20-mA transmitters Remote reset 24 VDC supply	
Outputs	Alarm 1, Alarm 2 and Fault as standard Warning and Inhibit relays on optional relay board Single, common or voted alarms on optional relay board Acknowledgeable relays on optional relay board Repeat 4-20-mA via optional Repeat Board	
Display	Large graphic display, 34 x 62 mm, 64 x 128 pixel 1.3" x 2.4" Menu structure and messages in real text, 3 button navigation Active, Fault, Alarm 1 and Alarm 2 LED's per input DC and AC power LED's Inhibit LED	
Power supply	External	24 VDC, or
	Internal	2.5 A, 5 A or 10 A power supply @ 110/240 VAC
Dimensions (approx.)	420 x 300 x 190 mm / 16.5" x 11.8" x 7.5" (W x H x D)	
Weight (approx.)	3 kg / 6.6 lbs, depending upon installed power supply	
Ambient conditions	Temperature	0 to 55 °C / 32 to 130 °F
	Humidity	0 to 100 %RH, non condensing
	Pressure	700 to 1,300 hPa / 20.6 to 38.3 inch Hg
Ingress Protection	IP65, ABS—OV material of construction	
Approvals	ATEX	IEEx II(2)G
	SIL	SIL 1
	CE-mark	Electromagnetic compatibility (directive 89/336/EEC)
		Low voltage directive (72/23/EEC, 93/68/EEC)



Flammable Gas Detection

Dräger

Technology for Life

Flammable Gas Detection

FLAMMABLE GAS DETECTION

Catalytic Bead Sensor Transmitters

Polytron® 8200	22
Polytron 5200	26
PointGard 3200	29

Infrared Sensor Transmitters

Polytron® 8700	34
Polytron® 8310	38
Polytron® 5700	41
Polytron® 5310	45
Pointgard 3700	48
PIR 7000	52
GS01 (Wireless)	56

Open Path Gas Detection System using Infrared

Pulsar 7000	60
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Catalytic Bead Sensor Transmitters

Dräger Polytron® 8200 CAT

Detection of flammable gases and vapors

The Dräger Polytron® 8200 CAT is an advanced explosion-proof transmitter for the detection of combustible gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex that will detect most flammable gases and vapors. In addition to a 3-wire 4 to 20-mA analog output with relays it also offers HART®, Modbus and Fieldbus protocols, making it compatible with most control systems.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 8200 CAT

Dräger Polytron® 8200 CAT			
Dräger Polytron® 8200 CAT DQ d A 4-20/HART®		1 / box	8344439
Dräger Polytron® 8200 CAT DQ d A 4-20/HART® relay		1 / box	8344440
Dräger Polytron® 8200 CAT DQ d S 4-20/HART®		1 / box	8344448
Dräger Polytron® 8200 CAT DQ d S 4-20/HART® Relay		1 / box	8344449
Dräger Polytron® 8xx0 Custom Configuration – visit www.draeger.com/polytron to configure yours		1 / box	8344800
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Aluminum junction box for remote sensor 'd'		1 / box	4544099
Stainless steel junction box for remote sensor 'd'		1 / box	4544098
Duct mount kit		1 / box	6812725
IR Connection Kit Polytron® 5000/8000		1 / box	4544197
PolySoft license (1 year)		download	8328600
PolySoft license (subscription)		download	8328601
Splash guard		1 / box	6812510
Gassing adapter	PE, w/o tubing	1 / box	4506978
	PE incl. tubing	1 / box	4509314
Calibration adapter Viton®		1 / box	6810536
Process adapter (Stainless steel) for DQ		1 / box	6812470
Prozess adapter (Stainless steel) for LC		1 / box	6812465

HART® is a registered trademark of the HART Communication Foundation.

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.

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")	
Gases	flammable gases and vapors	
Measuring ranges	DQ	0 to 100% LEL
	LC	0 to 10% LEL
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)	

Flammable Gas Detection

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")	
Gases	flammable gases and vapors	
Measuring ranges	DQ	0 to 100% LEL
	LC	0 to 10% LEL
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)	
Performance Characteristics		
Accuracy/repeatability	Zero	≤ 1 % LEL
	Span	≤ 1 % LEL
	Long term drift	≤ 3 % vol. after 12 months
Response time	T50	< 7 seconds (methane)
	T90	< 13 seconds (methane)
Electrical data		
Signal output analog	Normal operation	4 to 20 mA, 3- or 4-wire, sink or source
	Maintenance	Constant 3.4 mA (adjustable)
	Fault	< 1.2 mA
Signal output digital	HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ HI and Modbus RTU w/ 5-wires	
Power supply	10 to 30 V DC	
Power consumption (max.)	DQ, w/o relay, non-remote	105 mA at 24 V
	DQ, w/ relay, remote	145 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	
Environmental conditions (see sensor data sheet)	Temperature	-40 to 80 °C (-40 to 176 °F) without relay
		-40 to 70 °C (-40 to 158 °F) with relay-
		-50 to 85 °C (-122 to 185 °F) remote sensor
	Pressure	23.6 to 38.4 inch Hg / 800 to 1,200 mbar
Humidity	5 to 95% r. h., non-condensing	
Housing		
Transmitter housing	Epoxy coated copper-free aluminum or stainless steel SS316 L	
Sensor housing	Stainless steel 303	
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)	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm	
Weight, approx.	Aluminum	4.9 lbs / 2.2 kg
	SS316 L	8.8 lbs / 4.0 kg

Flammable Gas Detection

Technical Data

Approvals*	
UL & 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	Ex db IIC T6/T4 Gb, $-40 \leq Ta \leq +40/+70$ °C;
ATEX	II 2G Ex db IIC T6/T4 Gb, $-40 \leq Ta \leq +40/+70$ °C;
CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)
Shipping approvals (for DQ sensor only)	DNV GL, ABS, LR, CCS, RMRS
MED approval (for DQ sensor only)	Certificate No. MEDB0000411
DEKRA Performance approval (for DQ sensor only)	Certificate No. BVS 13 ATEX G 001 X
SIL 2 certified by TUEV Sued	Certificate No. Z10 053474 0023

* All docking station versions are only ATEX/IECEX approved

Dräger Polytron® 5200 CAT

Detection of flammable gases and vapors

The Dräger Polytron® 5200 CAT is a cost effective explosion proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses a catalytic bead DrägerSensor® Ex ... DQ, which will detect most flammable gases and vapors. A 3 wire 4 to 20 mA analog output with relays makes it compatible with most control systems.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 5200 CAT

Dräger Polytron® 5200 CAT			
Dräger Polytron® 5200 CAT DQ d A		1 / box	8344150
Dräger Polytron® 5200 CAT DQ d A relay		1 / box	8344151
Dräger Polytron® 5200 CAT DQ d S		1 / box	8344152
Dräger Polytron® 5200 CAT DQ d S Relay		1 / box	8344153
Dräger Polytron® 5xx0 Custom Configuration – visit www.draeger.com/polytron to configure yours		1 / box	8344500
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812725
IR Connection Kit Polytron® 5000/8000		1 / box	4544197
PolySoft		download	8328600
Splash guard		1 / box	6812510
Gassing adapter PE incl. tubing		1 / box	4509314
Calibration adapter Viton®		1 / box	6810536
Process adapter (Stainless steel) for DQ		1 / box	6812470
Prozess adapter (Stainless steel) for LC		1 / box	6812465

Viton® is a registered trademark of the DuPont company.

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")	
Gases	flammable gases and vapors	
Measuring ranges	DQ	0 to 100% LEL
	LC	0 to 10% LEL
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)	

Flammable Gas Detection

Technical Data

Electrical data		
Normal operation	4 to 20 mA	
Power supply	10 to 30 V DC, 3-wire	
Power consumption (max.)	w/o relay, non-remote	95 mA at 24 V
	w/ relay, remote	145 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, single-pole two-way contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound	
Environmental conditions (see sensor data sheet)		
Temperature	-40 to 80°C (-40 to 176°F) without relay	
	-40 to 70°C (-40 to 158°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	Stainless steel 303	
Enclosure protection type	NEMA 4X & 7, IP65/66/67	
Cable entry point	3/4" NPT threaded holes	
Dimensions (H x W x D), approx.	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm	
Weight, approx.	Aluminum	Aluminum 4.9 lbs/2.2 kg
	SS316 L	8.8 lbs/4.0 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 I, Zone 1, Group IIC; T-Code T6/T4 CSA C22.2 No. 152	
IECEX	Ex db IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+80°C; 'd' version	
CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)	

Flammable Gas Detection

Dräger PointGard 3200

Detection of flammable gases and vapors

The Dräger PointGard 3200 is a complete 1-channel gas detection system for detecting combustible gases or vapors in ambient air. In the robust yet compact IP66 housing already contains all the necessary alarm equipment.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger PointGard 3200**Dräger PointGard 3200 CAT (Order Remote Housing separately)**

Dräger PointGard 3200 CAT AC (CatEx Sensor included)	1 / box	3728173
Dräger PointGard 3200 CAT AC for Remote (CatEx Sensor not included)	1 / box	3728171
Dräger PointGard 3200 CAT DC (CatEx Sensor included)	1 / box	3728169
Dräger PointGard 3200 CAT DC for Remote (CatEx Sensor not included)	1 / box	3728168
Dräger PointGard 3200 CAT AC with green steady light (CatEx Sensor included)	1 / box	3728172
Dräger PointGard 3200 CAT AC for Remote with green steady light (CatEx Sensor not included)	1 / box	3728170

Dräger PointGard 3200 CAT accessories

Remote Sensor DQ NPT Alu (Ex d)	1 / box	3706933
Remote Sensor DQ NPT Steel (Ex d)	1 / box	3706934

Dräger PointGard 3000 Series common accessories

Mounting Bracket Set (not included in Dräger PointGard)	1 / box	8326497
Splash Guard	1 / box	6812510
Calibration Adapter Viton®	1 / box	6810536
IR Connection Kit for PC configuration and upgrades	1 / box	4544197
LED steady light, green	1 / box	8326489
LED strobe light, blue	1 / box	8326472
AC Power Cable Brazil	1 / box	8326448
AC Power Cable Europe	1 / box	8326449
AC Power Cable UK	1 / box	8326450
AC Power Cable USA	1 / box	8326451
AC Power Cable Australia	1 / box	8326452

Viton® is a registered trademark of the DuPont company.

Flammable Gas Detection

TECHNICAL DATA

Dräger PointGard 3200 CAT

Type	Self-contained gas monitor with alarm devices for monitoring flammable gases and vapors in the ambient air	
Measuring ranges	Catalytic Bead Sensor (CAT Ex)	0-100% LEL
Electrical data		
Signal output analog	Normal operation	4–20 mA with HART
	Maintenance	Constant 3.4 mA or 4 mA ±1 mA 1 Hz modulation (adjustable)
	Fault	<1.2 mA
Power supply AC version	Operating voltage	100-240 VAC 50-60 Hz
	Nominal power	6 W
	Operating current (max)	0.5 A
	Inrush current	Max. 40 A at 230 VAC 50 Hz
Power supply DC version	Operating voltage	10-30 VDC
	Nominal power	6 W
	Operating current (max)	2.5 A
Electrical certification	CE rating, IEC/EN 61010-1	
	Complies with UL 61010-1	
Relay specification	2 alarm relays and 1 fault relay	
	SPDT contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance bound	
	Alarm reset through front-mounted push button	
Alarm devices	Variants with amber and red LED strobes activate these on 2 alarm levels independently	
	Variants with green steady light activate red strobe on both alarm levels. Green steady light turns off during alarm or fault condition; optional blue LED strobe	
	85–105 dB adjustable-volume buzzer with continuous and pulsating tone. Side mounted horn silence button with adjustable resound time	
Display and controls		
LCD Display	75 mm/3" backlit graphic LC display	
	Selectable red or green illumination, alphanumeric	
Indicators	3 status LEDs (green/yellow/red)	
Operation	Through three front mounted push buttons	
Security	Separate passwords for maintenance and configuration menu	
Functions	Event and data logger with a capacity of up to 35,000 records	
	Warning and error messages displayed in plain text	
	Passwordless bump-test mode inhibits alarms	
	Automatic calibration mode for zero and span	

Flammable Gas Detection

Technical Data

Housing	
Material	Glass fiber reinforced polyester (GFRP)
Mounting	Wall mount with internal screws or optional SS mounting brackets
Housing protection type	IP66; indoor or outdoor use
Housing certification	UL 508A/50/50E; CSA C22.2 94.1/94.2/14-13
Cable entry point	3 cable glands, 1/2" NPT
Size (L x W x D)	255 x 280 x 120 mm/10 x 11 x 4.7"
Weight	4.2 kg / 9.2 lbs
Environmental conditions	
Temperature (storage)	-20 to +65 °C/-4 to +149 °F
Temperature (operation)	-20 to +50 °C/-4 to +122 °F
Pressure	20.7 to 38.4" Hg/700 to 1,300 hPa
Humidity	0 to 95% r. h., noncondensing

Infrared Sensor Transmitters

Flammable Gas Detection

Dräger Polytron® 8700 IR

Detection of flammable gases and vapors

The Dräger Polytron® 8700 IR is an advanced explosion proof transmitter for the detection of hydrocarbon gases in the lower explosion limit (LEL) and ppm. It uses a high performance infrared Dräger PIR 7000 sensor, which will quickly detect most common hydrocarbon gases. Besides a 3 wire 4 to 20 mA analog output with relays, it also offers HART®, Modbus and Fieldbus making it compatible with most control systems.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 8700 IR

Dräger Polytron® 8700 IR			
Dräger Polytron® 8700 IR 334 d A 4-20/HART®		1 / box	8344601
Dräger Polytron® 8700 IR 334 d A 4-20/HART® relay		1 / box	8344602
Dräger Polytron® 8700 IR 334 d S 4-20/HART®		1 / box	8344610
Dräger Polytron® 8700 IR 334 d S 4-20/HART® relay		1 / box	8344611
Dräger Polytron® 8700 IR 340 d A 4-20/HART®		1 / box	8344637
Dräger Polytron® 8700 IR 340 d A 4-20/HART® relay		1 / box	8344638
Dräger Polytron® 8xx0 Custom Configuration e.g. Modbus – visit www.draeger.com/polytron to configure yours		1 / box	8344800
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812300
Duct mount kit Flow Cell for PIR 7x00		1 / box	6811945
Duct mount kit Bump Test Adapter for PIR 7x00		1 / box	6811990
Flow Cell for PIR 7000		1 / box	6811490
Bump Test Adapter for PIR 7000		1 / box	6811630
Insect guard for PIR 7x00		1 / box	6811609
Hydrophobic filter for PIR 7x00 6		1 / box	6811890
Calibration adapter for PIR 7x00		1 / box	6811610
PolySoft license (1 year)		download	8328600
PolySoft license (subscription)		download	8328601
PolySoft Premium license (1 year)		download	8328639
PolySoft Premium license (subscription)		download	8328640
Process cuvette for PIR 7x00, POM (Polyoxymethylene)		1 / box	6811915
Process cuvette for PIR 7x00, stainless steel		1 / box	6811415
Process cuvette for PIR 7x00, SGR		1 / box	6813219
Aluminum junction box for remote sensor 'd'		1 / box	4544099
Stainless steel junction box for remote sensor 'd'		1 / box	4544098

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.

Flammable Gas Detection

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")	
Gases	flammable gases and vapors	
Measuring ranges	Methane, propane, ethylene	0 to 20 100% LEL
	Methane	0 to 100 vol. %
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)	
Performance Characteristics		
Accuracy/repeatability	Sensitivity	± 1 % LEL
	Long term drift	± 1 % LEL after 12 month
Response time	T90	4 seconds (w/o splash guard)
Electrical data		
Signal output analog	Normal operation	4 to 20 mA, 3- or 4-wire, sink or source
Signal output digital	HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ HI and Modbus RTU w/ 4-wire	
Power supply	10 to 30 V DC	
Power consumption (max.)	w/o relay, non-remote	145 mA at 24 V
	w/ relay, remote	185 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC,5 A @ 30 VDC	
Environmental conditions (see sensor data sheet)	Temperature	-40 to +171 °F (-40 to +77 °C) without relay -40 to +158°F (-40 to +70°C) 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	Stainless steel SS316 L	
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)	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm	
Weight, approx.	Aluminum	4.9 lbs / 2.2 kg
	SS316 L	8.8 lbs / 4.0 kg

Flammable Gas Detection

TECHNICAL DATA

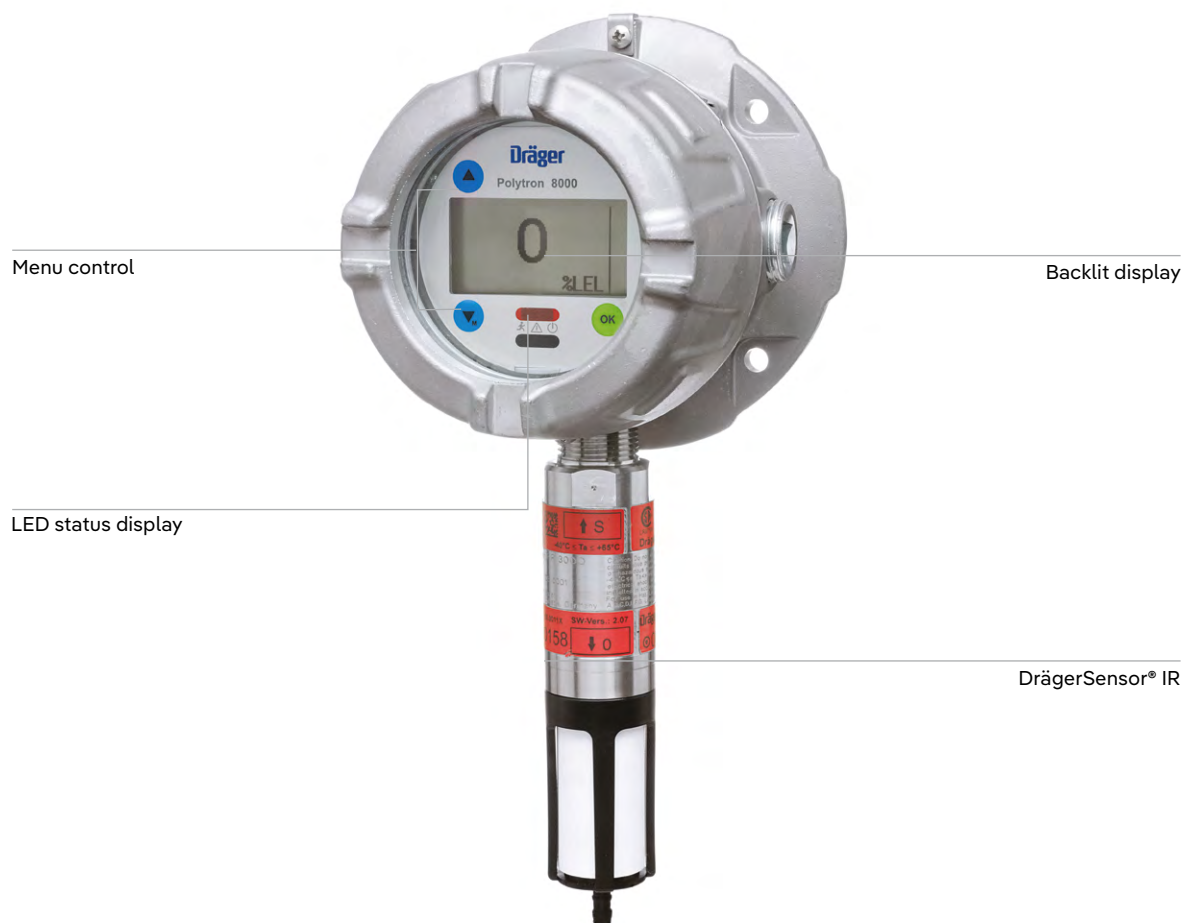
Approvals		
UL	Class I, Div 1, Groups A, B, C, D;; Class II, Div 1, Groups E, F, G; Class I, Zone 1, Group IIC; T-Code T6/T4	
CSA	Class I, Div 1, Groups B, C, D; Class II, Div 1, Groups E, F, G; Class I, Zone 1, Group IIC; T-Code T6/T4	
IECEX	4-20-mA HART®	Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+80^{\circ}\text{C}$; 'd' version
CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)	
Shipping approvals	DNV GL, ABS	
MED approval B	Certificate no. 61549/ 50 – 13 HH	
MED approval D	Certificate no. 12031 – 10 HH	
SIL 2 certified by TUEV Sued	Certificate no. Z10 1207 53474 013	

Flammable Gas Detection

Dräger Polytron® 8310 IR

Detection of flammable gases and vapors

The Dräger Polytron® 8310 IR is an advanced explosion proof transmitter for the detection of combustible hydrocarbon gases in the lower explosion limit (LEL). It uses an infrared DrägerSensor® IR that can be configured for methane, propane or ethylene. Besides a 3 wire 4 to 20 mA analog output with relays, it also offers HART®, Modbus and Fieldbus protocols making it compatible with most control systems.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 8310 IR**Dräger Polytron® 8310 IR**

Dräger Polytron® 8310 IR d A 4-20/HART®	1 / box	8344807
Dräger Polytron® 8310 IR d A 4-20/HART® relay	1 / box	8344808
Dräger Polytron® 5xx0 Custom Configuration – visit www.draeger.com/polytron to configure yours		

Accessories

Magnetic wand	1 / box	4544101
Pipe mount bracket	1 / box	4544198
Duct mount kit	1 / box	6812725
IR Connection Kit Polytron® 5000/8000	1 / box	4544197
PolySoft license (1 year)	download	8328600
PolySoft license (subscription)	download	8328601
Process adapter	1 / box	6811330
Weather protection kit Dräger Polytron® 5/6/8xxx	1 / box	3702198
Weather guard	1 / box	6811135

HART® is a registered trademark of the HART Communication Foundation.

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.

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")
Gases	Flammable hydrocarbon gases and vapors
Measuring ranges	0 to 100% LEL
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)

Performance Characteristics

Accuracy/repeatability	Sensitivity	≤ ± 0.01 % vol.
	Long term drift	≤ ± 0.03 % vol. after 12 months
Response time	T90	4 seconds (w/o splash guard)

Flammable Gas Detection

Technical Data

Electrical data		
Signal output analog	Normal operation	4 to 20 mA, 3- or 4-wire, sink or source
Signal output digital	HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 4-wire	
Power supply	10 to 30 V DC	
Power consumption (max.)	w/o relay, non-remote	145 mA at 24 V
	w/ relay, remote	185 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	
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	Stainless steel SS316 L	
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.	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm	
Weight, approx.	Aluminum	4.9 lbs / 2.2 kg
	SS316 L	8.8 lbs / 4.0 kg
Approvals		
UL & CSA	Class I, Div 1, Groups A, B, C, D;; Class I, Zone 1, Group IIC; T-Code T6/T4, CSA C22.2 No. 152	
IECEX	Ex db IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+65 °C;	
CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)	
Shipping approvals	DNV GL, ABS, LR, CCS, RMRS	
MED approval	Certificate No. MEDB0000411	
DEKRA Performance approval	Certificate No. BVS 13 ATEX G 001 X	

Flammable Gas Detection

Dräger Polytron® 5700 IR

Detection of flammable gases and vapors

The Dräger Polytron® 5700 IR is a cost effective explosion proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses a high performance infrared Dräger PIR 7000 sensor, which will quickly detect most common hydrocarbon gases. A 3 wire 4 to 20 mA analog output with relays makes it compatible with most control systems.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 5700 IR

Dräger Polytron® 5700 IR			
Dräger Polytron® 5700 IR 334 d A		1 / box	8344220
Dräger Polytron® 5700 IR 334 d A relay		1 / box	8344221
Dräger Polytron® 5700 IR 340 d A		1 / box	8344240
Dräger Polytron® 5700 IR 340 d A relay		1 / box	8344241
Dräger Polytron® 5700 IR 334 d S		1 / box	8344222
Dräger Polytron® 5xx0 Custom Configuration – visit www.draeger.com/polytron to configure yours		1 / box	8344500
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812300
Duct mount kit Flow Cell for PIR 7x00		1 / box	6811945
Duct mount kit Bump Test Adapter for PIR 7x00		1 / box	6811990
Status indicator for PIR 7000		1 / box	6811625
Splash guard for PIR 7000		1 / box	6811911
Flow Cell for PIR 7000		1 / box	6811490
Bump Test Adapter for PIR 7000		1 / box	6811630
Insect guard for PIR 7x00		1 / box	6811609
Hydrophobic filter for PIR 7x00		1 / box	6811890
Calibration adapter for PIR 7x00		1 / box	6811610
Process adapter for PIR 7x00, POM (Polyoxymethylene)		1 / box	6811915
Process adapter for PIR 7x00, stainless steel		1 / box	6811415
Aluminum junction box for remote sensor 'd'		1 / box	4544099
Stainless steel junction box for remote sensor 'd'		1 / box	4544098
Spacer		1 / box	6812617

Flammable Gas Detection

Technical Data

Type	Explosion proof / flameproof enclosed transmitter (“d”)	
Gases	flammable gases and vapors	
Measuring ranges	Methane, propane, ethylene	0 to 20 ... 100 % LEL
	Methane	0 to 100 vol. %
	Further substances and measuring ranges upon request	
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
	Fault	< 1.2 mA
Power supply	10 to 30 V DC, 3-wire	
Power consumption (max.)	w/o relay, non-remote	300 mA at 24V
	w/ relay, remote	350 mA at 24V
Relay specification (option)	2 alarm relays and 1 fault relay, single-pole two-way contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound	
Environmental conditions (see sensor data sheet)	Temperature	-40 to 77°C (-40 to 170°F) without relay -40 to 70°C (-40 to 158°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	Stainless steel SS316 L	
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	5.8" x 11.4" x 6.1" / 150 x 290 x 155 mm
Weight, approx.	w/o docking station Aluminum	8.6 lbs / 3.9 kg
	w/o docking station SS316 L	12.6lbs / 5.7 kg

Flammable Gas Detection

Technical Data

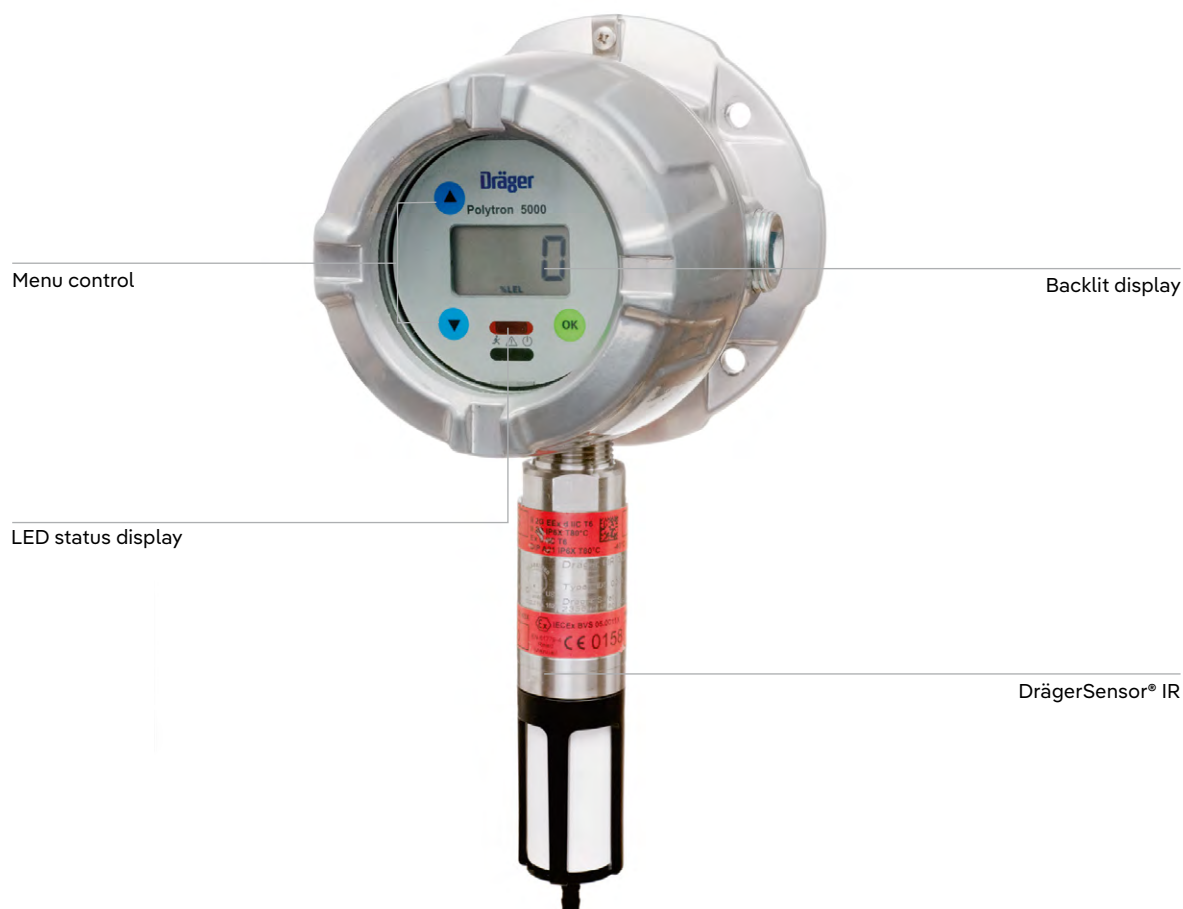
Approvals*	UL	Class I, Div 1, Groups B, C, D;; Class II, Div 1, Groups E, F, G; Class I, Zone 1, Group IIC; T-Code T6/T4
	CSA	Class I, Div 1, Groups B, C, D; Class II, Div 1, Groups E, F, G; Class I, Zone 1, Group IIC; T-Code T6/T4 CSA C22.2 No. 152
	IECEX	Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+80^{\circ}\text{C}$; "d" version
	ATEX	II 2G Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+80^{\circ}\text{C}$; "d" version
	CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)
	Performance approval	BVS 15 ATEX G 001 X

Flammable Gas Detection

Dräger Polytron® 5310 IR

Detection of flammable gases and vapors

The Dräger Polytron® 5310 IR is a cost effective explosion proof transmitter for the detection of flammable gases in the lower explosion limit (LEL). It uses an infrared DrägerSensor® IR that can be configured for methane, propane, or ethylene. A 3 wire 4 to 20 mA analog output with relays makes it compatible with most control systems.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 5310 IR

Dräger Polytron® 5310 IR			
Dräger Polytron® 5310 IR d A		1 / box	8344370
Dräger Polytron® 5310 IR d A Relay		1 / box	8344371
Dräger Polytron® 5xx0 Kit (Custom configuration e. g. stainless steel housing)		1 / box	8344500
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812725
IR Connection Kit Polytron® 5000/8000		1 / box	4544197
PolySoft		download	8328600
Process adapter		1 / box	6811330
Splash guard		1 / box	6810796
Protection labyrinth		1 / box	6811135

Technical Data

Type	Explosion proof / flameproof enclosed transmitter (“d”)	
Gases	flammable gases and vapors	
Measuring ranges	0 to 100% LEL	
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
	Fault	< 1.2 mA
Power supply	10 to 30 V DC, 3-wire	
Power consumption (max.)	w/o relay, non-remote	95 mA at 24 V
	w/ relay, remote	145 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, single-pole two-way contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound	

Flammable Gas Detection

Technical Data

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
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Pressure	20.7 to 38.4 inch Hg / 700 to 1,300 mbar
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Humidity	0 to 100 % r. h., non-condensing
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Housing

Transmitter housing	Epoxy coated copper-free aluminum or stainless steel SS316 L
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Sensor housing	Stainless steel SS316 L
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Enclosure protection type	NEMA 4X & 7, IP65/66/67
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Cable entry point	3/4" NPT threaded holes or M20 cable gland
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Dimensions (H x W x D), approx.	w/o docking station	11.6" x 5.9" x 5.1" / 295 x 150 x 130 mm
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Weight, approx.	w/o docking station Aluminum	4.9 lbs / 2.2 kg
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w/o docking station SS316 L	8.8 lbs / 4.0 kg
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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
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CSA	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T6/T4 CSA C22.2 No. 152
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IECEX	Ex db IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+65°C; "d" version
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ATEX	II 2G Ex db IIC T6/T4 Gb, -40 ≤ Ta ≤ +40/+65°C; "d" version
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CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)
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Performance approval	BVS 15 ATEX G 001 X
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* All docking station versions are only ATEX/IECEX approved

Flammable Gas Detection

Dräger PointGard 3700

Detection of flammable gases and vapors

The Dräger PointGard 3700 is a complete 1-channel gas detection system for detecting combustible gases or vapors in ambient air. In the robust yet compact IP66 housing already contains all the necessary alarm equipment.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger PointGard 3700**Dräger PointGard 3700 IR (Order Dräger PIR 7000 Sensor separatly)**

Dräger PointGard 3700/3720 IR AC Remote		1 / box	3728167
Dräger PointGard 3700/3720 IR DC Remote		1 / box	3728165
Dräger PointGard 3700/3720 IR AC Remote with green steady light		1 / box	3728166

Dräger PointGard 3700 IR compatible sensors

Dräger PIR 7000 Typ 334 (NPT) HART®, complete set (stainless steal)		1 / box	6813035
Dräger PIR 7000 Typ 340(NPT) HART®, complete set (stainless steal)		1 / box	6813045
Dräger PIR 7000 Typ 334 (NPT) HART®, complete set (aluminum)		1 / box	6813030
Dräger PIR 7000Typ 340(NPT) HART®, complete set (aluminum)		1 / box	6813040

The complete set includes the Ex d or e junction box, the splash guard, the status indicator and the mounting set, already pre-assembled.

Dräger PointGard 3000 Series common accessories

Mounting Bracket Set (not included in Dräger PointGard)		1 / box	8326497
Splash Guard		1 / box	6812510
Calibration Adapter for PIR 7000		1 / box	6811610
IR Connection Kit for PC configuration and upgrades		1 / box	4544197
LED steady light, green		1 / box	8326489
LED strobe light, blue		1 / box	8326472
AC Power Cable Brazil		1 / box	8326448
AC Power Cable Europe		1 / box	8326449
AC Power Cable UK		1 / box	8326450
AC Power Cable USA		1 / box	8326451
AC Power Cable Australia		1 / box	8326452

Flammable Gas Detection

TECHNICAL DATA

Dräger PointGard 3700 IR

Type	Self-contained gas monitor with alarm devices for monitoring flammable gases and vapors in the ambient air	
Measuring ranges	Ethylene	0-100% LEL
	Methane, Propane	0 - 20 ... 100% LEL
	Methane	0 - 100 vol.- %
	250+ tested substances	0 to 350 ppm ... 100 % LEL
Electrical data		
Signal output analog	Normal operation	4–20 mA with HART
	Maintenance	Constant 3.4 mA or 4 mA ±1 mA 1 Hz modulation (adjustable)
	Fault	<1.2 mA
Power supply AC version	Operating voltage	100-240 VAC 50-60 Hz
	Nominal power	12 W
	Operating current (max)	0.5 A
	Inrush current	Max. 40 A at 230 VAC 50 Hz
Power supply DC version	Operating voltage	10-30 VDC
	Nominal power	12 W
	Operating current (max)	2.5 A
Electrical certification	CE rating, IEC/EN 61010-1	
	Complies with UL 61010-1	
	Class B device, residential use compliant with ICES-3(B)/ NMB-3(B)	
Relay specification	2 alarm relays and 1 fault relay	
	SPDT contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance bound	
	Alarm reset through front-mounted push button	
Alarm devices	Variants with amber and red LED strobes activate these on 2 alarm levels independently	
	Variants with green steady light activate red strobe on both alarm levels. Green steady light turns off during alarm or fault condition; optional blue LED strobe	
	85–105 dB adjustable-volume buzzer with continuous and pulsating tone. Side mounted horn silence button with adjustable resound time.	
Display and controls		
LCD Display	75 mm/3" backlit graphic LC display	
	Selectable red or green illumination, alphanumeric	
Indicators	3 status LEDs (green/yellow/red)	
Operation	Through three front mounted push buttons	
Security	Separate passwords for maintenance and configuration menu	

Flammable Gas Detection

Technical Data

Functions	Event and data logger with a capacity of up to 35,000 records
	Warning and error messages displayed in plain text
	Passwordless bump-test mode inhibits alarms
	Automatic calibration mode for zero and span
Housing	
Material	Glass fiber reinforced polyester (GFRP)
Mounting	Wall mount with internal screws or optional SS mounting brackets
Housing protection type	IP66; indoor or outdoor use
Housing certification	UL 508A/50/50E; CSA C22.2 94.1/94.2/14-13
Cable entry point	3 cable glands, 1/2" NPT
Size (L x W x D)	255 x 280 x 120 mm/10 x 11 x 4.7"
Weight	3.8 kg / 8.4 lbs
Environmental conditions	
Temperature (storage)	-20 to +65 °C/-4 to +149 °F
Temperature (operation)	-20 to +50 °C/-4 to +122 °F
Pressure	20.7 to 38.4" Hg/700 to 1,300 hPa
Humidity	0 to 95% r. h., noncondensing

Flammable Gas Detection

Dräger PIR 7000 Flammable Gas Detection Transmitter

The Dräger PIR 7000 is an explosion-proof point gas detection transmitter that uses infrared (IR) technology to continuously monitor hydrocarbon gases in %LEL or ppm. With its stainless steel SS 316L enclosure and drift-free optics, this detector is built for the harshest industrial environments, including offshore installations.

Status Indicator LEDs

Aluminum or Stainless Steel Junction Box

Two 3/4" NPT ports

Splash Guard

Two 3/4" NPT ports

Contact area for magnetic wand requires no extra tool for calibration

Connection point for various accessories

Sapphire window

Heated optics

Coated reflector

Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger PIR 7000

Dräger Polytron® 5700 IR			
Dräger PIR 7000 type 334 (NPT) HART®		1 / box	6811552
Dräger PIR 7000 type 340 (NPT) HART®		1 / box	6811562
Dräger PIR 7000 334 NPT HART® complete set* Ex d Alu.		1 / box	6813030
Dräger PIR 7000 334 NPT HART® complete set* Ex d St. Steel		1 / box	6813035
Dräger PIR 7000 340 NPT HART® complete set* Ex d Alu.		1 / box	6813040
Dräger PIR 7000 340 NPT HART® complete set* Ex d St. Steel		1 / box	6813045
Dräger PIR 7000 type 334 (M25) HART®		1 / box	6811550
Dräger PIR 7000 type 334 NPT (Polytron® 5700/8700 Spare Sensor)		1 / box	6811822
Dräger PIR 7000 type 340 NPT (Polytron® 5700/8700 Spare Sensor)		1 / box	6811832
Dräger PIR 7000 type 334 (M25) HART®, complete set		1 / box	6811817
Dräger PIR 7000 type 340 (M25) HART®		1 / box	6811560
Dräger PIR 7000 type 340 (M25) HART®, complete set		1 / box	6811819

*The complete set contains an Ex e (M25) or Ex d (NPT) junction box, splash guard, status indicator and mounting set, already preassembled.
M25 variants are not UL/CSA approved

Accessories			
Mounting Set (only compatible with M25 version)		1 / box	6811648
Duct Mount Set Kit		1 / box	6811850
Splash Guard		1 / box	68 11 911
Status Indicator		1 / box	68 11 625
Insect Guard		1 / box	68 11 609
Sunshade Weather Guard		1 / box	SC05208
Spider Guard (finer mesh than insect guard)		1 / box	6800306
Hydrophobic Filter		1 / box	6811890
Calibration Adapter		1 / box	6811610
Flow Cell for Remote Calibration		1 / box	6811490
Flow Cell for Duct Mount Kit		1 / box	6811945
Bump Test Adapter		1 / box	6811630
Bump Test Adapter for Duct Mount Kit		1 / box	6811990
Process Adapter		1 / box	6811915

Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
Accessories			
Process Cuvette		1 / box	6811415
Process Cuvette SGR		1 / box	6813219
Magnetic Wand		1 / box	4544101
USB PC Adapter		1 / box	6811663
Dräger PRC 7000 Remote Control Software		1 / box	8323355
Dräger PRC 7010 Remote Control Software		1 / box	8323365

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HART® is a registered trademark of the HART® Communication Foundation.

Technical Data

Type	Explosion-proof non-display gas detection transmitter with infrared sensor technology	
Principle of operation	Temperature-compensated infrared absorption, 4-beam technology. IR absorption at 3.34μ or 3.40μ IR wavelength.	
Gases and ranges	Methane, propane, ethylene	0 to 20 ... 100 % LEL
	250+ tested substances	0 to 350 ppm ... 100 % LEL
	Methane	0 to 100 % vol.
Further substances and measuring ranges on request		
Measuring performance (type 334, methane, 0 to 100 %LEL)	Digital resolution	0.5 %LEL
	Repeatability	0.5 %LEL
	Linearity error	+/- 1.5 %LEL
	Response time t0...90	≤ 4 seconds ("normal response mode")
		< 1 seconds ("fast response mode")
		< 9 sec. (w/ splash guard, normal response mode)
	Long-term drift	≤ ± 1 %LEL after 12 months
Electrical data	Output signals	4 to 20 mA, HART® autodetect sink/source
	Fault signal	≤ 1.2 mA (configurable)
	Beam block warning signal	2 mA (configurable)
	Maintenance signal	3 mA (configurable)
	Power supply	13 to 30 V DC, 3-wire
	Power consumption	5.6 W (typical)

Flammable Gas Detection

Ambient conditions	Temperature	-40 to +77 °C/-40 to +170 °F (operating) -40 to + 85 °C/-40 to +180 °F (storage)
	Humidity	0 to 100 %RH
	Pressure	700 to 1,300 hPa/23.6 to 32.5 inch Hg
Enclosure	Material	Stainless steel SS 316L
	Connecting thread	M25 or 3/4" NPT
	Weight	2.2 kg (without accessories)
	Dimensions	160 mm x Ø 89 mm / 6.3" x Ø 3.5"
	Ingress protection	IP66 and IP67, NEMA 4X
Approvals	ATEX	II 2G Ex d(e) IIC T6/T4
		II 2D Ex tD A21 IP65 T80 °C/TI30 °C
	IECEX	Ex d IIC T6/T4
		Ex tD A21 IP65 T80 °C/TI30 °C
	UL & CSA (only NPT Variants)	Type: IDS 010x 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, -40 °C < Ta < +40 °C/ +80 °C 9 to 30 V DC, 9 W - Type 4x
	Functional Safety (SIL)	SIL2 cert. by TÜV (EN 61508, EN 50402) PFD = 2.04E-04, SFF = 94.0%
	CE mark	Electromagnetic compatibility (directive 89/336/EEC)

Flammable Gas Detection

GS01 (wireless)

Detection of flammable gases and vapors

The GS01 is a wireless infrared gas transmitter for continuous monitoring of flammable hydrocarbon gases and vapors in the oil and gas industry. The intrinsically safe and SIL-rated transmitter features completely wireless signal transmission and power supply. This makes the GS01 a flexible and cost efficient solution for plant expansions, upgrades, and new greenfield projects.

Infrared sensor with MEMS technology, ultrasound sensor to support the low-power operation

Radio antenna with a range of up to 500 m



Infrared sensor with MEMS technology, ultrasound sensor to support the low-power operation

Battery operating time up to 24 months

Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger GS01 (wireless)

GS01 wireless IR Gas Detector FM		1 / box	AL20735
GS01-EA wireless IR Gas Detector-5m FM		1 / box	AL20737
GS01-EA wireless IR Gas Detector-10m FM		1 / box	AL20738
GS01-EA wireless IR Gas Detector-20m FM		1 / box	AL20739
Accessories			
GS01 Battery pack FM (without cells)		1 / box	AL20713
GS01 Battery cell type SL-2780/S		1 / box	AL20706
GS01 Battery cover		1 / box	AL20708
GS01 Weather cap		1 / box	AL20709
GS01 Serial adapter		1 / box	AL20710
GS01 Sunshade / weather protection		1 / box	AL20711
Sencity OMNI-S Omni-directional 6 dBi Antenna with bracket (for GS01-EA)		1 / box	AL20718
Antenna cable with n-type connectors in both ends, 5m (for GS01-EA)		1 / box	AL20719
Antenna cable with n-type connectors in both ends, 10m (for GS01-EA)		1 / box	AL20720
Antenna cable with n-type connectors in both ends, 20m (for GS01-EA)		1 / box	AL20721
Access Point, ISA 100, Output-Copper		1 / box	NAI0019
Access Point, ISA 100, Output-Fiber Optic		1 / box	NAI0020
Media Converter, Fiber Optic		1 / box	NAI0021
Yokogawa Gateway, 1 License for 25 Points & 2 Access Points for standalone use		1 / box	NAI0015
Yokogawa Gateway, 1 License for 25 Points & 2 Access Points for redundant AP use		1 / box	NAI0016
Yokogawa Gateway, 1 License for 100 Points & 20 Access Points for standalone use		1 / box	NAI0017
Yokogawa Gateway, 1 License for 100 Points & 20 Access Points for redundant AP use		1 / box	NAI0018

Flammable Gas Detection

Technical Data

General		
Measuring principle	Infrared single beam, triple wavelength	
Detectable gases	ATEX / IECEx:	0 to 100 % LEL (Methane, Propane)
	FM:	0 to 100 % LEL (Methane)
		0 to 80 % LEL (Propane)
Calibration	Factory-set, no field calibration	
Performance	Response time	≤5 seconds
	Accuracy	±3 % LEL or ±10 % of measured value, each the higher value (refers to Methane)
	Zero-point stability	±3 % LEL (lifelong)
Environmental Conditions	Operating temperature	-30 degrees C/-22 degrees F to + 55 degrees C/131 degrees F (if higher temperature ranges up to +65 °C are required please contact Dräger)
	Storage temperature	-40 degrees C/ -40 degrees F to + 65 degrees C/149
	Humidity	0 to 100 % RH
	Protection Class	IP66 and IP67
Housing	Dimensions	11.81" x 4.33" x 6.70"
	Weight	6.17 lbs (incl. Battery)
	Mounting	With bracket for 8 mm or 5/16" bolts
Approvals	ATEX / IECEx	II 2G Ex ib IIC T4 Gb (-30 degrees C/-22 degrees F to + 55 degrees C/131 degrees F.)
	FM	Class I, Zone 1 AEx ib IIC T4 Gb (-30 degrees C/-22 degrees F to + 55 degrees C/131 degrees F.)
		Class I, Div 2 Group A, B, C, D (-30 degrees C/-22 degrees F to + 55 degrees C/131 degrees F.)
	Performance Approval	Compliant with EN 60079-29-1
	Safety Integrity Level	SIL2 IEC 61508, Ed.2.0

PROFINET® is a registered trademark of PROFIBUS and PROFINET International (PI).

The ISA100 Wireless™ is a trademark of ISA100 Wireless Compliance Institute.

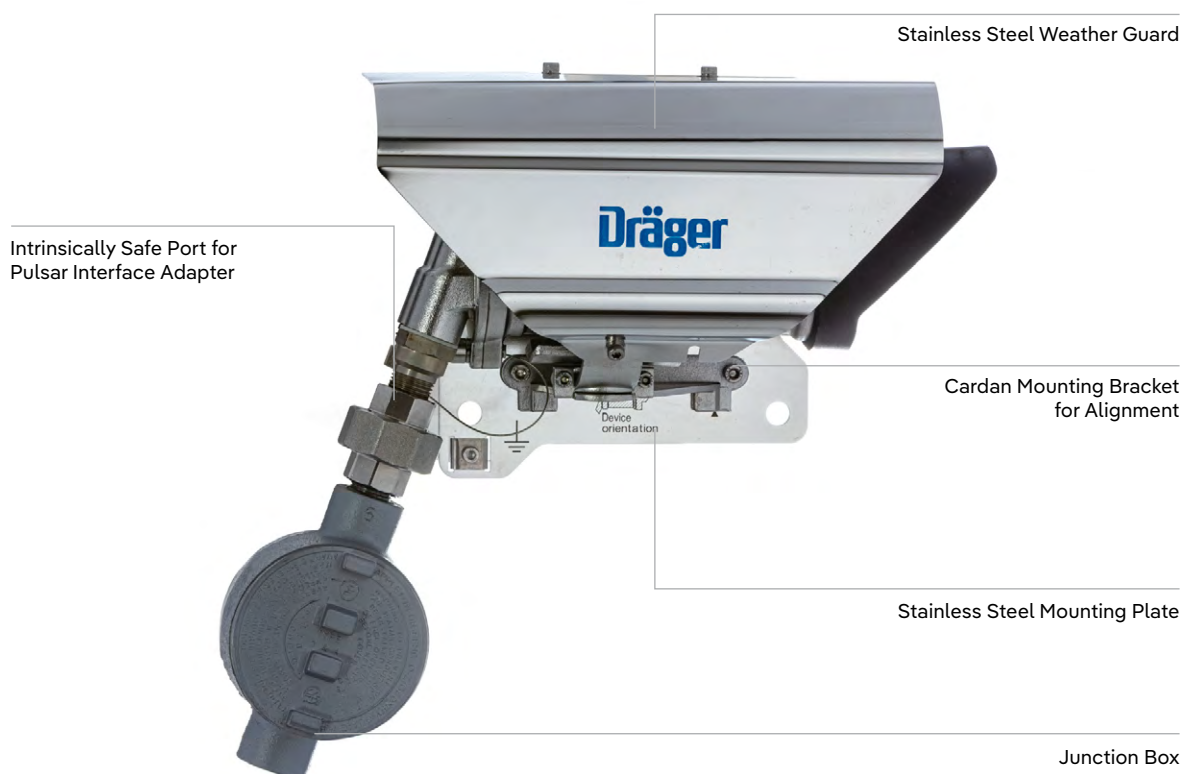
Open Path Gas Detection System using Infrared

Flammable Gas Detection

Dräger Pulsar 7000 Series

Detection of flammable gases and vapors

The Dräger Pulsar 7000 Series are stationary open path gas detectors. They detect explosive hydrocarbons in gases. The robust design and the extremely rapid response of the sensor make the Dräger Pulsar 7000 Series a dependable solution for your requirements in the oil and gas industry, as well as the chemical industry.



Flammable Gas Detection

Product	Description	Packaging unit/type	Order No.
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Dräger PULSAR 7000**Dräger Pulsar 7000 Complete Set**

Pulsar 7000 Short Range 4m – 60m (13ft – 196ft) CSA & UL	1 / box	NA10340
Pulsar 7000 Medium Range 30m – 120m (98ft – 393ft) CSA & UL	1 / box	NA10341
Pulsar 7000 Long Range 100m – 200m (328ft – 656ft) CSA & UL	1 / box	NA10342
Pulsar 7000 Short Range 4m – 60m (13ft – 196ft) CSA & UL-Ethylene	1 / box	NA10343
Pulsar 7000 Medium Range 30m – 120m (98ft – 393ft) CSA & UL-Ethylene	1 / box	NA10344

Dräger Pulsar 7000

Dräger Pulsar 7000 TX S Range CSA & UL	1 / box	6851728
Dräger Pulsar 7000 TX L Range CSA & UL	1 / box	6851729
Dräger Pulsar 7900 RX S Range CSA & UL-Ethylene	1 / box	6851732
Dräger Pulsar 7700 RX S Range CSA & UL	1 / box	6851733
Dräger Pulsar 7700 RX L Range CSA & UL	1 / box	6851734

Both TX & RX will come with a mounting plate and a weather shield.

Duct Mount

Dräger Pulsar 7700 Duct Mount CSA & UL Complete (TX & RX)	1 / box	6851739
Dräger Pulsar 7000 Duct Mount TX CSA & UL	1 / box	6851730
Dräger Pulsar 7700 Duct Mount RX CSA & UL	1 / box	6851731

Mounting Parts

2" / 50mm Pipe mount kit	1 / box	2307003
Pulsar 7000 duct wall mounting plate kit	1 / box	2350450

Communication & Maintenance

Pulsar Interface Adapter (PIA), single unit	1 / box	6851565
Pulsar Interface Adapter set for Standard variant	1 / box	6851630
Pulsar Interface Adapter set for Ethylene variant	1 / box	6851631
Pulsar Interface Adapter set for Duct Mount	1 / box	6851632
Lens cleaning fluid LCF01	1 / box	2350291

Calibration Kits

Gas test sheets for Dräger Pulsar 7900 (Ethylene)	1 / box	2350520
Gas test sheets for Dräger Pulsar 7700 (Methane/Propane)	1 / box	2350521
Gas test sheets for Dräger Pulsar 7700 Duct Mount	1 / box	2350451
Gas cell kit, single pass (Propane)	1 / box	2350514
Gas cell kit, single pass (Methane)	1 / box	2350516
Gas cell kit, single pass (Methane and Propane)	1 / box	2350518

Flammable Gas Detection

Technical Data

Type	Explosion-proof open-paths gas detector based on infrared absorbtion spectroscopy	
Gases	Wide range of hydrocarbons, including the alkane series from methane to hexane, propylene	
Measuring ranges	Min. 0 to 4 LEL m, max. 0 to 8 LEL m	
Gas category	IEC, NIOSH or PTB; selectable	
Factory calibration	Methane, propane or ethylene, selectable	
Operating range	4 to 60 m, 30 to 120 m or 100 to 200 m (distance between transmitter and receiver)	
Signal output		
Analogue	Measuring	4 to 20 mA (source and sink)
	Pre-warning	3.5 mA (eg. dirty lens or misalignment), configurable
	Maintenance	3 mA
	Beam block warning	2 mA
	Faults	< 1 mA
Digital	HART® 7	
Power consumption	< 5 W receiver, < 9 W transmitter	
Operating voltage	18 to 32 VDC (24 VDC nominal)	
Response time t90	< 2 s (under normal operating conditions when using the digital link)	
Skew tolerance	+/- 0.6°	
Ambient conditions	Temperature	-40 to + 60 °C, -40 to +140 °F
	Pressure	800 to 1,100 hPa
	Air humidity	0 to 100% rel. humidity, non-condensing
Housing	Material	Stainless steel AISI 316L “Marine Grade”
	Protection class	IP66/IP67
	Weight (approx.)	9 kg (19.84 lbs), each transmitter and receiver incl. backplate and weather shield
Approvals	Tamb = -55 °C to +40 °C/+60 °C*	
	Performance approval	FM Class 6325
		ANSI/ISA-12.13.04
	Safety Integrity Level	SIL 2 SC3 Certification by TÜV Nord (EN 61508)
	UL /CSA	Class I, Div. I, Groups C, D Class II, Div. I, Groups E, F, G, H Class I, Zone 1, AEx db [ia Ga] IIC T6...T5 Gb

* -40 °C for Heavy Duty/Offshore model

HART® is a registered trademark of the HART® Communication Foundation



Toxic Gases and Oxygen Detectors

Dräger

Technology for Life

Toxic Gases and Oxygen Detectors

TOXIC GASES AND OXYGEN DETECTORS

Electrochemical Sensor Transmitters

Polytron® 8100	66
Polytron® 7000	71
Polytron® 5100	76
Pointgard 3100	81
Polytron® 3000	86
Polytron® 6100 (Wireless)	89

Infrared Sensor Transmitters for Toxic Gases

Polytron® 8720	94
Polytron® 5720	98
Pointgard 3720	102

SENSORS FOR FIXED GAS DETECTIONS

Electrochemical Sensors for Fixed Gas Detection

Electrochemical	107
SensorAlive H ₂ S®	110

Photoionization Sensor Transmitter for VOCs

Falco PID	114
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Electrochemical Sensor Transmitters

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



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 8100 EC

Dräger Polytron® 5100 EC			
Dräger Polytron® 8100 EC d A 4-20/HART®		1 / box	8344403
Dräger Polytron® 8100 EC d A 4-20/HART® relay		1 / box	8344404
Dräger Polytron® 8100 EC d S 4-20/HART®		1 / box	8344412
Dräger Polytron® 8100 EC d S 4-20/HART® Relay		1 / box	8344413
Dräger Polytron® 8xx0 Custom Configuration, e.g. Modbus – visit www.draeger.com/polytron to configure yours			8344800
Accessories			
Magnetic wand		1 / box	4544101
Sensor Test Dongle		1 / box	8317619
Diagnostic Dongle		1 / box	8317860
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812725
Duct mount adapter for remote EC sensing head		1 / box	8317617
Remote adapter RS stainless steel		1 / box	8323404
IR Connection Kit Polytron® 5000/8000		1 / box	4544197
PolySoft license (1 year)		download	8328639
PolySoft license (subscription)		download	8328640
Connection cable w/ plug for Remote EC Sensing Head	16 ft / 5 m	1 / box	8323305
	49 ft / 15 m	1 / box	8323315
	98 ft / 30 m	1 / box	8323330
Splash guard		1 / box	6812510
Weather protection kit Dräger Polytron® 5/6/8xxx		1 / box	3702198
Calibration adapter FKM Viton®		1 / box	6810536
Gassing adapter	PE incl. tubing	1 / box	4509314
Bayonet Ring Dräger SensorAlive		1 / box	6800132
Dust filter (not for Cl ₂ , HCl, H ₂ O ₂ , O ₂ , N ₂ H ₄)		1 / box	6810536
Dust filter (SO ₂)		1 / box	6812224
Selective filter A2F (CO, CO LS, H ₂)		1 / box	6809684
Selective filter K2F (COCl ₂)		1 / box	6809933
Selective filter NF (HCl)		1 / box	6809643
Selective filter HSF (Hydrides)		1 / box	6809862
Selective filter D3F (CO) 68 12 435		1 / box	6812435
Selective filter MF (PH ₃ , AsH ₃)		1 / box	6809638
Selective filter KIF (SO ₂) 68		1 / box	6809663

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
Electrochemical DrägerSensors			
DrägerSensor® AC		1/ box	6810595
Initial Operation Set for DrägerSensor® AC		1/ box	6809381
DrägerSensor® Cl ₂		1/ box	6809665
DrägerSensor® COCl ₂		1/ box	6809930
DrägerSensor® CO		1/ box	6809605
DrägerSensor® CO LS		1/ box	6809620
DrägerSensor® CO LH		1/ box	6812570
DrägerSensor® H ₂		1/ box	6809685
DrägerSensor® H ₂ O ₂ HC		1/ box	6809675
DrägerSensor® H ₂ O ₂ LC		1/ box	6809705
DrägerSensor® H ₂ S LC		1/ box	6809610
DrägerSensor® H ₂ S HC		1/ box	6809710
DrägerSensor® H ₂ S		1/ box	6810435
DrägerSensor® H ₂ S SensorAlive		1/ box	6814014
DrägerSensor® HCl		1/ box	6809640
DrägerSensor® HCN LC		1/ box	6813200
DrägerSensor® Hydrides		1/ box	6809635
DrägerSensor® Hydrides SC		1/ box	6809980
DrägerSensor® PH ₃ /AsH ₃		1/ box	6809695
DrägerSensor® Hydrazine		1/ box	6810180
DrägerSensor® NH ₃ LC		1/ box	6809680
DrägerSensor® NH ₃ HC		1/ box	6809645
DrägerSensor® NH ₃ TL		1/ box	6813095
DrägerSensor® NH ₃ FL		1/ box	6813260
DrägerSensor® NO LC		1/ box	6809625
DrägerSensor® NO ₂		1/ box	6809655
DrägerSensor® NO ₂ LC		1/ box	6813205
DrägerSensor® O ₃		1/ box	6814005
DrägerSensor® O ₂ LS		1/ box	6809630
DrägerSensor® OVI		1/ box	6810740
DrägerSensor® OV2		1/ box	6810745
DrägerSensor® SO ₂		1/ box	6809660

Toxic Gases & Oxygen Detectors

Technical Data

Type	Explosion proof / flameproof enclosed transmitter (“d”)	
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)	
Performance Characteristics	see sensor datasheet	
Electrical data		
Signal output analog	Normal operation	4 to 20 mA, 3- or 4-wire, sink or source
	Maintenance	Constant 3.4 mA (adjustable)
	Fault	< 1.2 mA, 3-wire
Power supply	10 to 30 V DC	
Power consumption (max.)	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	
Environmental conditions		
Temperature	-40 to 77°C (-40 to 170°F) without relay	
	-40 to 70°C (-40 to 158°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.	11.0” x 5.9” x 5.1” / 280 x 150 x 130 mm	
Weight, approx.	Aluminum	6.6 lbs / 3.0 kg
	SS316 L	11.0 lbs / 5.0 kg

Toxic Gases & Oxygen Detectors

Technical Data

Approvals	
UL & CSA	Class I, Div I, Groups A, B, C, D;
	Class II, Div I, Groups E, F, G;
	Class I, Zone 1, Group IIC;
	T-Code T6/T4
IECEX	Ex db [ia] IIC T6/T4 Gb,
	-40 ≤ Ta ≤ +40/+70 °C;
ATEX	II 2G Ex db [ia] IIC T6/T4 Gb,
	-40 ≤ Ta ≤ +40/+70 °C;
FM Performance (H ₂ S sensor)	Certificate No: FM16NUS0015
	FM 6340:2014, FM Class 3810:2005,
	ISA-92.00.01-2010
CE markings	ATEX (Directive 2014/34/EU)
	Electromagnetic Compatibility (Directive 2014/30/EU)
	Low Voltage (Directive 2014/35/EU)
Marine approvals	DNV GL, ABS, LR, CSS, RMRS
MED approval	Certificate no. MEDB0000411
DEKRA Performance approval (for O ₂ sensors only)	Certificate no. BVS 13 ATEX G 001 X
	EN 60079-29-16:2016
SIL 2 certified by TUEV Sued	Certificate no. Z10 053474 0023

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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.

Toxic Gases & Oxygen Detectors

Dräger Polytron® 7000 Fixed Gas Detector

The Dräger Polytron® 7000 is an intrinsically safe, 2 or 3 wire gas detector can satisfy all toxic gas and oxygen measurement applications on a single platform. It meets compliance requirements, as well as the high specification requirements of customized solutions.

Large Display

34 x 62 mm, 64 x 128 pixel
1.3" x 2.4"

Quick Lock mechanism

One half turn—locked

**Polytron Docking station**

Durable GRP housing

Simple 3 button operation and navigation

Graphics, icons and real text descriptions

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 7000

Dräger Polytron® 5720 IR			
Dräger Polytron® 7000	4 to 20m A	1 / box	8317610
Dräger Polytron® 7000	4 to 20m A, Relay	1 / box	8317636*
Dräger Polytron® 7000	4 to 20m A, Pump	1 / box	8317637*
Dräger Polytron® 7000	4 to 20m A, Relay, Pump	1 / box	8317638*
Dräger Polytron® 7000	4 to 20m A, HART®	1 / box	8317776*
Dräger Polytron® 7000	4 to 20m A, HART®, Relay	1 / box	8317777*
Dräger Polytron® 7000	4 to 20m A, HART®, Pump	1 / box	8317778*
Dräger Polytron® 7000	4 to 20m A, HART®, Relay, Pump	1 / box	8317810*
Dräger Polytron® 7000	LON	1 / box	8317816*
Dräger Polytron® 7000	LON, Relay	1 / box	8317817*
Dräger Polytron® 7000	LON, Pump	1 / box	8317818*
Dräger Polytron® 7000	LON, Relay, Pump	1 / box	8319430
Dräger Polytron® 7000	PROFIBUS® PA	1 / box	8319427*
Dräger Polytron® 7000	PROFIBUS® PA, Relay	1 / box	8319436*
Dräger Polytron® 7000	PROFIBUS® PA, Pump	1 / box	8319438*
Dräger Polytron® 7000	PROFIBUS® PA, Relay, Pump	1 / box	8319440
Dräger Polytron® 7000	FOUNDATION fieldbus™ H1	1 / box	8319428*
Dräger Polytron® 7000	FOUNDATION fieldbus™ H1, Relay	1 / box	8319437*
Dräger Polytron® 7000	FOUNDATION fieldbus™ H1, Relay, Pump	1 / box	8319439*
Dräger Polytron Docking Station – one required per transmitter		1 / box	8317990
Modules			
Pump Module		1 / box	8317350
Relay Module		1 / box	8317360
Relay Connector		1 / box	1890086
Software Dongles			
Data Dongle		1 / box	8317618
Sensor Test Dongle		1 / box	8317619
Sensor Diagnostic Dongle		1 / box	8317860
Accessories			
Remote Sensor Adapter		1 / box	8317275
Remote Cable and plug 5 m / 16 ft.		1 / box	8317270

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
Remote Cable and plug 15 m / 49 ft.		1 / box	8317998
Remote Cable and plug 30 m / 100 ft.		1 / box	8317999
Remote duct adapter		1 / box	8317617
Duct Mounting Kit		1 / box	8317150
Cable Entry Set M20, with cable gland and connector for multi- drop		1 / box	8317282
Calibration Adapter, electrochemical sensors		1 / box	6806978
Pump Adapter for DrägerSensor® AC L		1 / box	8317976
Calibration Adapter, DrägerSensor® AC L		1 / box	6809380
IR data cable, USB DIRA		1 / box	8317409

*General purpose use only. The transmitter does not have any approval, but the CE-mark when used with LON. a pump or relay module.

Technical Data

Electrical data	Intrinsically safe transmitter for electrochemical sensors	
	Toxic gases and oxygen, ranges user adjustable, see sensor data sheet	
Display	Large graphic display, 34 x 62 mm, 64 x 128 pixel 1.3" x 2.4"	
	Menu structure and messages in real text, 3 button navigation	
Output	Analog	4 to 20 mA
	Digital	HART®, LONWORKS®, PROFIBUS PA, FOUNDATION fieldbus™
	Warning signal, configurable	default: warning signal every 10s for 1s
	Maintenance signal, configurable	3.4 mA constant or 4 mA ± 1 mA, 1 Hz modulation
	Fault signal	< 3.2 mA
Power Supply	16,5 to 30VDC 2-Wire, 3-Wire for Pump module* and relay module*	
Pump Module*	Tubing up to 30 m / 100 ft. @ 0.5 L/min with 4 mm / 3/16" inner diameter	
Relay Module*	Two alarm relays, one fault relay, SPDT, user programmable	
	Rating 5A 240VAC, 5A 24VDC	

Toxic Gases & Oxygen Detectors

Technical Data

Ambient Conditions	Transmitter only, for sensors see separate sensor data sheet	
	Temperature	-40 to +65 °C / -40 to +150 °F
	Pressure	700 to 1300 hPa / 23.6 to 32.5 inch Hg
	Humidity	0 to 100 %RH, non condensing
Enclosure	GRP, IP 66/67, NEMA 4, M20 cable gland	
Size (h x w x d)	166 x 135 x 129 mm, 6.54 "x 5.32" x 5.08" ft.	
Weight	Approx. 900 g / 2 lbs.	
SIL Level	SIL 2 verified	
Approvals	ATEX	II 1G EEx ia IIC T6/T4, -40 to +40 / +65 °C /
		II 3G EEx nL IIC T6, -25 to +40 °C /
		II 3D IP6x T65°C
	EN50104:2002+A1:2004 O ₂ measuring function for explosion protection (inertization)	
	IEC	Ex ia IIC T6/T4, -40 to +40 / +65 °C
	UL	Class I, Div 1, Group A, B, C, D, Class II, Div 1, Group E, F, G
	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
	CE markings	Electromagnetic compatibility (directive 89/336/EEC) Low voltage directive (72/23/EEC, 93/68/EEC)

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FOUNDATION fieldbus™ is a registered trademark of the Fieldbus Foundation™

Viton® is a registered trademark of DuPont.

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
Electrochemical DrägerSensors			
DrägerSensor® AC		1/ box	6810595
Initial Operation Set for DrägerSensor® AC		1/ box	6809381
DrägerSensor® Cl ₂		1/ box	6809665
DrägerSensor® COCl ₂		1/ box	6809930
DrägerSensor® CO		1/ box	6809605
DrägerSensor® CO LS		1/ box	6809620
DrägerSensor® CO LH		1/ box	6812570
DrägerSensor® H ₂		1/ box	6809685
DrägerSensor® H ₂ O ₂ HC		1/ box	6809675
DrägerSensor® H ₂ O ₂ LC		1/ box	6809705
DrägerSensor® H ₂ S LC		1/ box	6809610
DrägerSensor® H ₂ S HC		1/ box	6809710
DrägerSensor® H ₂ S		1/ box	6810435
DrägerSensor® HCl		1/ box	6809640
DrägerSensor® HCN LC		1/ box	6813200
DrägerSensor® Hydrides		1/ box	6809635
DrägerSensor® Hydrides SC		1/ box	6809980
DrägerSensor® PH ₃ /AsH ₃		1/ box	6809695
DrägerSensor® Hydrazine		1/ box	6810180
DrägerSensor® NH ₃ LC		1/ box	6809680
DrägerSensor® NH ₃ HC		1/ box	6809645
DrägerSensor® NH ₃ TL		1/ box	6813095
DrägerSensor® NO LC		1/ box	6809625
DrägerSensor® NO ₂		1/ box	6809655
DrägerSensor® NO ₂ LC		1/ box	6813205
DrägerSensor® O ₃		1/ box	6814005
DrägerSensor® O ₂ LS		1/ box	6809630
DrägerSensor® OV1		1/ box	6810740
DrägerSensor® OV2		1/ box	6810745
DrägerSensor® SO ₂		1/ box	6809660

Toxic Gases & Oxygen Detectors

Dräger Polytron® 5100 EC

Detection of toxic gases and vapors

The Dräger Polytron® 5100 EC is a cost-effective 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. A 2 or 3 wire 4-to-20 mA output with relays make it compatible with most control systems.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 5100 EC

Dräger Polytron® 5100 EC			
Dräger Polytron® 5100 EC d A		1 / box	8344860
Dräger Polytron® 5100 EC d A relay		1 / box	8344121
Dräger Polytron® 5100 EC d S		1 / box	8344862
Dräger Polytron® 5100 EC d S Relay		1 / box	8344123
Dräger Polytron® 5xx0 Custom Configuration – visit www.draeger.com/polytron to configure yours			8344500
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812725
Duct mount adapter for remote EC sensing head		1 / box	8317617
Remote adapter RS stainless steel		1 / box	8323404
EC Sensing Head Remote w/mount kit		1 / box	6812684
IR Connection Kit Polytron® 5000/8000		1 / box	4544197
PolySoft		download	8328600
Connection cable w/ plug for Remote EC Sensing Head	16 ft / 5 m	1 / box	8323305
	49 ft / 15 m	1 / box	8323315
	98 ft / 30 m	1 / box	8323330
Splash guard		1 / box	6812510
Gassing adapter	PE incl. tubing	1 / box	4509314
Calibration adapter Viton®			6810536
EC Sensors (Maximum Range, Field Adjustable)			
DrägerSensor® AC Acidic Compounds 0–30 ppm		1 / box	6810595
DrägerSensor® Cl ₂ Chlorine 0–50 ppm		1 / box	6809665
DrägerSensor® CO Carbon Monoxide 0–1,000 ppm		1 / box	6809605
DrägerSensor® CO LS Carbon Monoxide 0–5,000 ppm		1 / box	6809620
DrägerSensor® CO LH Carbon Monoxide 0–300 ppm		1 / box	6812570
DrägerSensor® COCl ₂ Phosgene 0–20 ppm		1 / box	6809930
DrägerSensor® H ₂ Hydrogen 0–3,000 ppm		1 / box	6809685

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
DrägerSensor® H ₂ O ₂ LC Hydrogen Peroxide 0–300 ppm		1 / box	6809705
DrägerSensor® H ₂ S Hydrogen Sulfide 0–100 ppm		1 / box	6810435
DrägerSensor® H ₂ S HC Hydrogen Sulfide 0–1,000 ppm		1 / box	6809710
DrägerSensor® H ₂ S LC Hydrogen Sulfide 0–100 ppm		1 / box	6809610
DrägerSensor® HCN LC Hydrogen Cyanide 0–50 ppm		1 / box	6813200
DrägerSensor® PH ₃ /AsH ₃ Phosphine/Arsine 0–10 ppm		1 / box	6809695
DrägerSensor® Hydride 0–20 ppm		1 / box	6809635
DrägerSensor® NH ₃ HC Ammonia 0–1,000 ppm		1 / box	6809645
DrägerSensor® NH ₃ LC Ammonia 0–300 ppm		1 / box	6809680
DrägerSensor® NH ₃ TL Ammonia 0–300 ppm		1 / box	6813095
DrägerSensor® NH ₃ TH Ammonia 0–10,000 ppm		1 / box	6800055
DrägerSensor® NO Nitric Oxide 0–200 ppm		1 / box	6809625
DrägerSensor® NO ₂ Nitrogen Dioxide 0–100 ppm		1 / box	6809655
DrägerSensor® NO ₂ LC Nitrogen Dioxide 0–20 ppm		1 / box	6813205
DrägerSensor® O ₂ Oxygen 0–100% Vol.		1 / box	6809720
DrägerSensor® O ₂ LS Oxygen 0–25% Vol.		1 / box	6809630
DrägerSensor® OVI Organic Vapors 0–200 ppm		1 / box	6810740
DrägerSensor® OV ₂ Organic Vapors 0–100 ppm		1 / box	6810745
DrägerSensor® SO ₂ Sulfur Dioxide 0–100 ppm		1 / box	6809660

Viton® is a registered trademark of the DuPont company.

Toxic Gases & Oxygen Detectors

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")	
Gases	Toxic gases and oxygen, dependent on the sensor used	
Measuring ranges	Customized adjustment, see sensor data sheet	
Display	Backlit (3-wire) graphic LCD; 3 Status LEDs (green/yellow/red) (3-wire)	
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, 3-wire < 3 mA, 2-wire
Power supply	10 to 30 V DC, 3-wire 18 to 30 V DC, 2-wire	
Power consumption (max.)	w/o relay, non-remote	300 mA at 24 V
	w/ relay, remote	350 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, single-pole two-way contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound	
Environmental conditions		
Temperature	-40 to 77°C (-40 to 170°F) without relay -40 to 70°C (-40 to 158°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
Weight, approx.	w/o docking station Aluminum	8.6 lbs / 3.9 kg
	w/o docking station SS316 L	12.6 lbs / 5.7 kg

Toxic Gases & Oxygen Detectors

Technical Data

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	Ex db [ia] IIC T6/T4 Gb, $-40 \leq Ta \leq +40/+70^{\circ}\text{C}$; "d" version Ex db e [ia] IIC T6/T4 Gb, $-40 \leq Ta \leq +40/+70^{\circ}\text{C}$; "e" version Ex tb [ia] IIIC T135°C Db
	ATEX	II 2G Ex db [ia] IIC T6/T4 Gb, $-40 \leq Ta \leq +40/+70^{\circ}\text{C}$; "d" version II 2G Ex db e [ia] IIC T6/T4 Gb, $-40 \leq Ta \leq +40/+70^{\circ}\text{C}$; "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)

All docking station versions are only ATEX/IECEX approved

Toxic Gases & Oxygen Detectors

Dräger PointGard 3100

Detection of toxic gases and oxygen

The Dräger PointGard 3100 is a complete 1-channel gas detection system for detecting toxic gases or oxygen in ambient air. In the robust yet compact IP66 housing already contains all necessary alarm equipment.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger PointGard 3100

Dräger PointGard 3100 EC (Order EC-Sensor separatly)

Dräger PointGard 3100 EC AC		1 / box	3728176
Dräger PointGard 3100 EC AC with green steady light		1 / box	3728175
Dräger PointGard 3100 EC DC		1 / box	3728174
Dräger PointGard 3100 EC DC with green steady light		1 / box	3730935

Dräger PointGard 3100 EC accessories

EC Sensing Head Remote Enclosure w/ mount (requires cable)		1 / box	6812684
Remote Cable + Plug (5 m/16')		1 / box	6812684
Remote Cable + Plug (15 m/49')		1 / box	8323315
Remote Cable + Plug (30 m/100')		1 / box	8323330
Remote Cable + Plug (30 m/100')		1 / box	8317860
Sensor Test Dongle		1 / box	8317619

Electrochemical DrägerSensors

DrägerSensor® AC	Acidic Compounds	1 / box	6810595
DrägerSensor® Cl ₂	Chlorine 0-50 ppm	1 / box	6809665
DrägerSensor® CO	0-1000 ppm	1 / box	6809605
DrägerSensor® CO LS	Carbon Monoxide 0-5000 ppm	1 / box	6809620
DrägerSensor® CO LH	Carbon Monoxide 0-300 ppm	1 / box	6812570
DrägerSensor® COCl ₂	Phosgene 0-20 ppm	1 / box	6809930
DrägerSensor® H ₂	0-3000 ppm	1 / box	6809685
DrägerSensor® H ₂ O ₂ HC	Hydrogen Peroxide 0-7000 ppm	1 / box	6809675
DrägerSensor® H ₂ O ₂ LC	Hydrogen Peroxide 0-300 ppm	1 / box	6809705
DrägerSensor® H ₂ S	Hydrogen Sulfide 0-100 ppm	1 / box	6810435
DrägerSensor® H ₂ S HC	Hydrogen Sulfide 0-1000 ppm	1 / box	6809710
DrägerSensor® H ₂ S LC	Hydrogen Sulfide 0-100 ppm	1 / box	6809610
DrägerSensor® HCl	Hydrogen Chloride 0-100 ppm	1 / box	6809640
DrägerSensor® HCN LC	Hydrogen Cyanide 0-50 ppm	1 / box	6813200
DrägerSensor® PH ₃ /AsH ₃	0-10 ppm	1 / box	6809695
DrägerSensor® Hydride	0-20 ppm	1 / box	6809635
DrägerSensor® Hydride SC	0-0.5 ppm	1 / box	6809980

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
DrägerSensor® N ₂ H ₄	Hydrazine	1 / box	6810180
DrägerSensor® NH ₃ HC	Ammonia 0-1000 ppm*	1 / box	6809645
DrägerSensor® NH ₃ TH	Ammonia 0-10000 ppm	1 / box	6800055
DrägerSensor® NH ₃ TL	Ammonia 0-300 ppm	1 / box	6813095
DrägerSensor® NH ₃ FL	Ammonia 0-300 ppm	1 / box	6813260
DrägerSensor® NO LC	Nitric Oxide 0-200 ppm	1 / box	6809625
DrägerSensor® NO ₂	Nitrogen Dioxide 0-100 ppm	1 / box	6809655
DrägerSensor® NO ₂ LC	Nitrogen Dioxide 0-20 ppm	1 / box	6813205
DrägerSensor® O ₂ LS	Oxygen 0-25% Vol	1 / box	6809630
DrägerSensor® O ₃	Ozone 0-5 ppm	1 / box	6810290
DrägerSensor® OV1	Organic Vapors 0-200 ppm	1 / box	6810740
DrägerSensor® OV2	Organic Vapors 0-100 ppm	1 / box	6810745
DrägerSensor® SO ₂	Sulfur Dioxide 0-10 ppm	1 / box	6809660
Dräger PointGard 3000 Series common accessories			
Mounting Bracket Set (not included in Dräger PointGard)		1 / box	8326497
Splash Guard		1 / box	6812510
Calibration Adapter Viton®		1 / box	6810536
IR Connection Kit for PC configuration and upgrades		1 / box	8317409
LED steady light, green		1 / box	8326489
LED strobe light, blue		1 / box	8326472
AC Power Cable Brazil		1 / box	8326448
AC Power Cable Europe		1 / box	8326449
AC Power Cable UK		1 / box	8326450
AC Power Cable USA		1 / box	8326451
AC Power Cable Australia		1 / box	8326452

Viton® is a registered trademark of the DuPont company.

Toxic Gases & Oxygen Detectors

TECHNICAL DATA

Dräger PointGard 3100 EC		
Type	Self-contained gas monitor with alarm devices for monitoring toxic gases and oxygen in the ambient air	
Measuring ranges	Depending on the electrochemical DrägerSensor®	
Electrical data		
Signal output analog	Normal operation	4–20 mA with HART
	Maintenance	Constant 3.4 mA or 4 mA ±1 mA 1 Hz modulation (adjustable)
	Fault	<1.2 mA
Power supply AC version	Operating voltage	100-240 VAC 50-60 Hz
	Nominal power	6 W
	Operating current (max)	0.5 A
	Inrush current	Max. 40 A at 230 VAC 50 Hz
Power supply DC version	Operating voltage	10-30 VDC
	Nominal power	6 W
	Operating current (max)	2.5 A
Electrical certification	CE rating, IEC/EN 61010-1	
	Complies with UL 61010-1	
	Class B device, residential use compliant with ICES-3(B)/ NMB-3(B)	
Relay specification	2 alarm relays and 1 fault relay	
	SPDT contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance bound	
	Alarm reset through front-mounted push button	
Alarm devices	Variants with amber and red LED strobes activate these on 2 alarm levels independently	
	Variants with green steady light activate red strobe on both alarm levels. Green steady light turns off during alarm or fault condition; optional blue LED strobe	
	85–105 dB adjustable-volume buzzer with continuous and pulsating tone. Side mounted horn silence button with adjustable resound time.	
Display and controls		
LCD Display	75 mm/3" backlit graphic LC display	
	Selectable red or green illumination, alphanumeric	
Indicators	3 status LEDs (green/yellow/red)	
Operation	Through three front mounted push buttons	
Security	Separate passwords for maintenance and configuration menu	

Toxic Gases & Oxygen Detectors

Technical Data

Housing	
Material	Glass fiber reinforced polyester (GFRP)
Mounting	Wall mount with internal screws or optional SS mounting brackets
Housing protection type	IP66; indoor or outdoor use
Housing certification	UL 508A/50/50E; CSA C22.2 94.1/94.2/14-13
Cable entry point	3 cable glands, 1/2" NPT
Size (L x W x D)	255 x 280 x 120 mm/10 x 11 x 4.7"
Weight	3.9 kg/8.6 lb
Environmental conditions	
Temperature (storage)	-20 to +65 °C/-4 to +149 °F
Temperature (operation)	-20 to +50 °C/-4 to +122 °F
Pressure	20.7 to 38.4" Hg/700 to 1,300 hPa
Humidity	0 to 95% r. h., noncondensing

Toxic Gases & Oxygen Detectors

Dräger Polytron® 3000 Fixed Gas Detector

Continuous safety calls for nonstop gas monitoring. The Dräger Polytron® 3000 is an intrinsically safe gas detector for the continuous monitoring of more than 60 toxic gases and oxygen in ambient air. It is part of a new generation of gas detectors developed on a modular platform. The Polytron® 3000 communicates to the central control system via a 4 to 20 mA signal.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
Dräger Polytron® 3000			
Dräger Polytron® 3000 with Display		1 / box	Various
Polytron 3000		1 / box	8316601
Polytron 3000 AC 3 ppm		1 / box	8316652
Polytron 3000 C ₂ H ₄ O 50 PPM		1 / box	8316658
Polytron 3000 CL ₂ 1 PPM		1 / box	8316647
Polytron 3000 CL ₂ 10 PPM		1 / box	8316648
Polytron 3000 CL ₂ 25 PPM		1 / box	8316649
Polytron 3000 CO 100 PPM		1 / box	8316632
Polytron 3000 CO 1000 PPM		1 / box	8316630
Polytron 3000 CO 300 PPM		1 / box	8316631
Polytron 3000 CO-LS 300 PPM		1 / box	8316633
Polytron 3000 DS Ozone 0,5 PPM		1 / box	8328632
Polytron 3000 H ₂ 1000 PPM		1 / box	8316669
Polytron 3000 H ₂ 3000 ppm		1 / box	8316655
Polytron 3000 H ₂ S LC 100 PPM		1 / box	8316636
Polytron 3000 H ₂ S LC 20 PPM		1 / box	8316634
Polytron 3000 H ₂ S LC 50 PPM		1 / box	8316635
Polytron 3000 HCl 30 PPM		1 / box	8316670
Polytron 3000 HCN 10 PPM		1 / box	8328622
Polytron 3000 HCN 50 ppm		1 / box	8316678
Polytron 3000 HCN 50 PPM		1 / box	8328623
Polytron 3000 HF 10 PPM		1 / box	8316657
Polytron 3000 N ₂ H ₄ 1 ppm		1 / box	8316650
Polytron 3000 NH ₃ 100 PPM		1 / box	8328620
Polytron 3000 NH ₃ 300 PPM		1 / box	8328621
Polytron 3000 NH ₃ HC 1000 PPM		1 / box	8316639
Polytron 3000 NH ₃ HC 300 PPM		1 / box	8316638
Polytron 3000 NH ₃ LC 100 PPM		1 / box	8316637
Polytron 3000 NO LC 50 PPM		1 / box	8316640
Polytron 3000 NO ₂ 10 ppm		1 / box	8316641
Polytron 3000 NO ₂ 10 PPM		1 / box	8328619
Polytron 3000 NO ₂ 5 PPM		1 / box	8328618
Polytron 3000 O ₂ 100 Vol%		1 / box	8316644
Polytron 3000 O ₂ 25 VOL%		1 / box	8316643

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
Polytron 3000 O ₂ 5 Vol%		1 / box	8316642
Polytron 3000 O ₂ LS 25 VOL%		1 / box	8316645
Polytron 3000 O ₃ 0,5 ppm		1 / box	8316665
Polytron 3000 PH ₃ 0.3 ppm		1 / box	8316653
Polytron 3000 PH ₃ 1 ppm		1 / box	8316667
Polytron 3000 PH ₃ 10 ppm		1 / box	8316668
Polytron 3000 SO ₂ 10 PPM		1 / box	8316646
Polytron® Docking Station, one per transmitter		1 / box	8317990
Duct Mount Kit		1 / box	8317150

Viton® is a registered trademark of DuPont.

Technical Data

Type	Intrinsically safe transmitter for electrochemical sensors	
Gases and Ranges	Toxic gases and oxygen in various ranges	
Output	Analog	4 to 20 mA
	Maintenance signal	3.4 mA constant
	Fault signal	< 3.2 mA
Power Supply	12 to 30 VDC, 2-wire	
Ambient Conditions	Transmitter only, for sensors see separate sensor data sheet	
	Temperature	-40 to +65 °C / -40 to +150 °F
	Pressure	700 to 1,300 mbar / 20.7 to 38.4 inch Hg
	Humidity	0 to 100 %RH, non condensing
Enclosure	IP66/67, NEMA 4, GRP housing, M20 cable gland	
Dimensions (approx.)	166 x 135 x 129 mm / 6.54" x 5.32" x 5.08" (H x W x D)	
Weight (approx.)	900 g / 2 lbs.	Indicators
Approvals	ATEX	II 1G EEx ia IIC T6/T4: -40 to +40 / +65 °C
		II 3G EEx nL IIC T6/T4: -25 to +40 / +65 °C
		II 3D IP6x T65 °C
	IECEX	EEx ia IIC T6/T4: -40 to +40 / +65 °C
	UL	Class I, Div I, Group A, B, C, D
		Class II, Div I, Group E, F, G
		T6/T4: -40 to +40 / +65 °C
	CSA	Class I, Div I, Group A, B, C, D
		Ex ia T6/T4: -40 to +40 / +65 °C
	CE-mark	electromagnetic compatibility (directive 89/336/EEC)

Dräger Polytron® 6100 EC WL

Wireless transmitter for toxic gases

The Dräger Polytron 6100 EC WL is a wireless transmitter for continuous monitoring of toxic gases and oxygen. The intrinsically safe and SIL2-rated transmitter features completely wireless signal transmission using either ISA100 or Wireless HART and with battery or 24 VDC wired power supply. The internal battery pack allows the transmitter to operate continuously for up to 24 months making the Polytron 6100 a flexible and cost-efficient solution for plant expansions, upgrades or new installations.

Signal antenna with a range of up to 1640 ft.

Battery with a service life of up to 24 months

Bluetooth® for configuration and diagnostics

DrägerSensor® EC

LED status indicator



WirelessHART

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
Dräger Polytron® 6100 EC WL WirelessHART® and ISA100			
Dräger Polytron® 6100 EC WL WirelessHART®		1 / box	3714791
Dräger Polytron® Repeater WirelessHART®		1 / box	3714789
Dräger Polytron® 6100 EC WL ISA100		1 / box	8327000
Dräger Polytron® Repeater ISA100		1 / box	8327001
Accessories			
Dräger Polytron® 6100 Battery Box		1 / box	3702223
Dräger Polytron® 6100 Battery Pack,		1 / box	3702176
Dräger Polytron® 6100 Battery Pack,		6 / box	3702177
Weather protection kit Dräger Polytron® 5/6/8xxx		1 / box	3702198
Dräger Polytron® 6100 Premium Antenna, 2dBi		1 / box	8327813
Dräger Polytron® 6100 Standard Antenna, 2dBi		1 / box	3702169
Dräger PolytronR 6100 Remote Antenna, 2 dBi		1 / box	3702244
Dräger Polytron® 6100 Remote Antenna, 6 dBi		1 / box	3702171
Antenna cable, 5 m		1 / box	AL20719
Antenna cable, 10 m		1 / box	AL20720
Antenna cable, 20 m		1 / box	AL20721
Weather protection kit Dräger Polytron® 5/6/8xxx			3702198
Pole Mount Kit		1 / box	4544198
Calibration adapter FKM Viton®		1 / box	6810536
Dräger PolySoft license (1 year free updates)		download	8328600
Dräger PolySoft license (subscription lifelong updates)		download	8328601
Magnetic Wand		1 / box	4544101
Electrochemical DrägerSensors			
DrägerSensor® AC		1 / box	6810595
Initial Operation Set for DrägerSensor® AC			6809381
DrägerSensor® Cl ₂		1 / box	6809665
DrägerSensor® COCl ₂		1 / box	6809930
DrägerSensor® CO		1 / box	6809605
DrägerSensor® CO LS		1 / box	6809620
DrägerSensor® CO LH		1 / box	6812570
DrägerSensor® H ₂		1 / box	6809685
DrägerSensor® H ₂ O ₂ HC		1 / box	6809675

Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
DrägerSensor® H ₂ O ₂ LC		1 / box	6809705
DrägerSensor® H ₂ S LC		1 / box	6809610
DrägerSensor® H ₂ S HC		1 / box	6809710
DrägerSensor® H ₂ S		1 / box	6810435
DrägerSensor® HCl		1 / box	6809640
DrägerSensor® HCN LC		1 / box	6813200
DrägerSensor® Hydrides		1 / box	6809635
DrägerSensor® Hydrides SC		1 / box	6809980
DrägerSensor® PH ₃ /AsH ₃		1 / box	6809695
DrägerSensor® Hydrazine		1 / box	6810180
DrägerSensor® NH ₃ HC		1 / box	6809645
DrägerSensor® NH ₃ TL		1 / box	6813095
DrägerSensor® Ammonia TH 0-10000 ppm			6800055
DrägerSensor® NH ₃ FL		1 / box	6813260
DrägerSensor® NO LC		1 / box	6809625
DrägerSensor® NO ₂		1 / box	6809655
DrägerSensor® NO ₂ LC		1 / box	6813205
DrägerSensor® O ₃		1 / box	6814005
DrägerSensor® O ₂ LS		1 / box	6809630
DrägerSensor® OVI		1 / box	6810740
DrägerSensor® OV2		1 / box	6810745
DrägerSensor® SO ₂		1 / box	6809660
Dust filter (not for Cl ₂ , HCl, H ₂ O ₂ , O ₂ , N ₂ H ₄)			6809595
Dust filter (SO ₂)			6812224
Selective filter A2F (CO, CO LS, H ₂)			6809684
Selective filter K2F (COCl ₂)			6809933
Selective filter NF (HCl)			6809643
Selective filter HSF (Hydrides)			6809862
Selective filter D3F (CO)			6812435
Selective filter MF (PH ₃ , AsH ₃)			6809638
Selective filter KIF (SO ₂)			6809663

Toxic Gases & Oxygen Detectors

Technical Data

Housing	Gases and measuring range	Toxic gases and Oxygen, see sensor data sheet. All DrägerSensors are supported.
	Housing material	Stainless steel 316
	Protection class	IP66/67
	Dimensions	320 x 150 x 170 mm (with 2dBi aerial)
	Weight transmitter	Ca. 3.2 kg (7.0 lb)
	Weight battery pack	Ca. 0.5 kg (1.1 lb)
	Cable gland	M25 x 1.5
Electrical data	Battery type	Lithium thionyl chloride (Battery pack with 4 D cells)
	Battery life time	Depending on operating conditions; max. 24 months
	Wired power supply	2-wire shielded cable, 24-12 AWG / 0,2 – 2,5 mm ²
	Operating voltage	14 to 30 V
Environmental conditions	Temperature	-40 to +65 °C (-40 to +149 °F)
	Pressure	700 to 1,300 hPa (20.7 to 38.4 in Hg)
	Humidity	0 to 100 % r.h., non-condensing
Communication	Bluetooth® (for operation and service purposes)	Range 50 ft.
	Measured value transmission (process interface), protocol	ISA100 Wireless™
	Type	IEEE802.15.4 in 2.4 GHz-ISM-Band
	Range	1640 ft. in free area
Approvals	ATEX / IECEx	M1 / II 1GD Ex ia I Ma, Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da, -40°C ≤ Ta ≤ +65°C
		ATEX directive 2014/34/EU
	CE-Directive	RED directive 2014/53/EU
		RoHS directive 2011/65/EU
	Safety Integrity Level	SIL2*

PROFINET® is a registered trademark of PROFIBUS and PROFINET International (PI).

The ISA100 Wireless™ is a registered trademark of ISA100 Wireless Compliance Institute.

Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

* – as of October 2020

Infrared Sensor Transmitters for Toxic Gases

Toxic Gases & Oxygen Detectors

Dräger Polytron® 8720 IR

Detection of carbon dioxide

The Dräger Polytron® 8720 IR is an advanced explosion proof transmitter for the detection of carbon dioxide in percent volume or ppm. It uses a high performance infrared Dräger PIR 7200 sensor, which can be submerged in water without damage. Besides a 3 wire 4 to 20 mA analog output with relays, it also offers HART®, Modbus and Fieldbus making it compatible with most control systems.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 8720 IR

Dräger Polytron® 8720 IR			
Dräger Polytron® 8720 IR d A 4-20/HART®		1 / box	8344709
Dräger Polytron® 8720 IR d A 4-20/HART® relay		1 / box	8344710
Dräger Polytron® 8720 IR d S 4-20/HART® ITR 0550			VN00285
Dräger Polytron® 8720 IR d S 4-20/HART® relay ITR 0551			VN00286
Dräger PolytronR 8xx Custom Configuration Kit e.g. Modbus – visit www.draeger.com/polytron to configure yours			8344800
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812300
Duct mount kit Flow Cell for PIR 7x00		1 / box	6811945
Duct mount kit Bump Test Adapter for PIR 7x00		1 / box	6811990
Status indicator for PIR 7200		1 / box	68 11920
Splash guard for PIR 7200		1 / box	6811912
Flow Cell for PIR 7200		1 / box	6811910
Bump Test Adapter for PIR 7200		1 / box	6811930
Insect guard for PIR 7x00		1 / box	6811609
Hydrophobic filter for PIR 7x00		1 / box	6811890
Calibration adapter for PIR 7x00		1 / box	6811610
PolySoft license (1 year)		download	6828600
PolySoft license (subscription)		download	6828601
PolySoft Premium license (1 year)		download	8328639
PolySoft Premium license (subscription)		download	8328640
Process cuvette for PIR 7x00, POM (Polyoxymethylene)		1 / box	6811915
Process cuvette for PIR 7x00, stainless steel		1 / box	6811415
Process cuvette for PIR 7x00, SGR		1 / box	6813219
Aluminum junction box for remote sensor “d”		1 / box	4544099
Stainless steel junction box for remote sensor “d”		1 / box	4544098

HART® is a registered trademark of the HART Communication Foundation.

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.

Toxic Gases & Oxygen Detectors

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d")	
Gases	Carbon dioxide	
Measuring ranges	0 to 10 vol. % (Standard)	
	0 to 2,000 ppm to 30 vol. % (configurable)	
	Up to 100 vol. % possible with decreased linearity	
Display	Backlit graphic LCD; 3 Status LEDs (green/yellow/red)	
Performance Characteristics		
Accuracy/repeatability	Sensitivity	± 0.01 % vol.
	Long term drift	± 0.03 % vol. after 12 months
Response time	T90	4 seconds (w/o splash guard)
Electrical data		
Signal output analog	Normal operation	4 to 20 mA, 3- or 4-wire, sink or source
	Maintenance	Constant 3.4 mA (adjustable)
	Fault	< 1.2 mA
Signal output digital	HART® w/ 3- or 4-wire, PROFIBUS® PA, FOUNDATION fieldbus™ H1 and Modbus RTU w/ 5-wire	
Power supply	10 to 30 V DC	
Power consumption (max.)	w/o relay, non-remote	300 mA at 24 V
	w/ relay, remote	350 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	
Environmental conditions		
Temperature	-40 to 77°C (-40 to 170°F) without relay	
	-40 to 70°C (-40 to 158°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	Stainless steel SS316 L	
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.	11.0" x 5.9" x 5.1" / 280 x 150 x 130 mm	
Weight, approx.	8.6 lbs / 3.9 kg	
	12.6lbs / 5.7 kg	

Toxic Gases & Oxygen Detectors

Technical Data

Approvals	
UL & CSA	Class I, Div I, Groups A, B, C, D;
	Class I, Zone 1, Group IIC;
	T-Code T6/T4
	CSA C22.2 No. 152
IECEX	Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+80$ °C;
ATEX	II 2G Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+70$ °C;
CE markings	ATEX (Directive 2014/34/EU)
	Electromagnetic Compatibility (Directive 2014/30/EU)
	Low Voltage (Directive 2014/35/EU)
Shipping approvals	DNV GL, ABS
MED approval	Certificate No. MEDB0000411
DEKRA Performance approval	PFG 14 G 001XSI
SIL 2 certified by TUEV Sued	Certificate no. Z10 053474 0023

Toxic Gases & Oxygen Detectors

Dräger Polytron® 5720 IR

Detection of carbon dioxide

The Dräger Polytron® 5720 IR is a cost effective explosion proof transmitter for the detection of carbon dioxide in percent volume or ppm. It uses a high performance infrared Dräger PIR 7200 sensor, which can be submerged in water without damage. A 3 wire 4 to 20 mA analog output with relays makes it compatible with most control systems.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 5720 IR

Dräger Polytron® 5720 IR			
Dräger Polytron® 5720 IR d A		1 / box	8344200
Dräger Polytron® 5720 IR d A relay		1 / box	8344201
Dräger Polytron® 5xx0 Custom Configuration – visit www.draeger.com/polytron to configure yours			8344500
Accessories			
Magnetic wand		1 / box	4544101
Pipe mount bracket		1 / box	4544198
Duct mount kit		1 / box	6812300
Duct mount kit Flow Cell for PIR 7x00		1 / box	6811945
Duct mount kit Bump Test Adapter for PIR 7x00		1 / box	6811990
Status indicator for PIR 7200		1 / box	6811920
Splash guard for PIR 7200		1 / box	6811912
Flow Cell for PIR 7200		1 / box	6811910
Bump Test Adapter for PIR 7200		1 / box	6811930
Insect guard for PIR 7x00		1 / box	6811609
Hydrophobic filter for PIR 7x00		1 / box	6811890
Calibration adapter for PIR 7x00		1 / box	6811610
Process adapter for PIR 7x00, POM (Polyoxymethylene)		1 / box	6811915
Process adapter for PIR 7x00, stainless steel		1 / box	6811415
Aluminum junction box for remote sensor “d”		1 / box	4544099
Stainless steel junction box for remote sensor “d”		1 / box	4544098
Spacer		1 / box	6812617

Toxic Gases & Oxygen Detectors

TECHNICAL DATA

Type	Explosion proof / flameproof enclosed transmitter (“d”)	
Gases	Carbon dioxide	
Measuring ranges	0 to 10 vol. % (Standard)	
	0 to 2,000 ppm to 30 vol. % (configurable)	
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
Power supply	10 to 30 V DC, 3-wire	
Power consumption (max.)	w/o relay, non-remote	300 mA at 24 V
	w/ relay, remote	350 mA at 24 V
Relay specification (option)	2 alarm relays and 1 fault relay, single-pole two-way contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance-bound	
Environmental conditions		
Temperature	-40 to 77°C (-40 to 170°F) without relay	
	-40 to 70°C (-40 to 158°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	Stainless steel SS316 L	
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	5.8” x 11.4” x 6.1” / 150 x 290 x 155 mm
Weight, approx.	w/o docking station Aluminum	8.6 lbs / 3.9 kg
	w/o docking station SS316 L	12.6 lbs / 5.7 kg

Toxic Gases & Oxygen Detectors

Technical Data

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	Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+80^{\circ}\text{C}$; “d” version
	ATEX	II 2G Ex db IIC T6/T4 Gb, $-40 \leq T_a \leq +40/+80^{\circ}\text{C}$; “d” version
	CE markings	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU) Low Voltage (Directive 2014/35/EU)

*All docking station versions are only ATEX/IECEX approved

Toxic Gases & Oxygen Detectors

Dräger PointGard 3720

Detection of Carbon dioxide

The Dräger PointGard 3720 is a complete 1-channel gas detection system for detecting carbon dioxide in ambient air. The robust yet compact IP66 housing already contains all the necessary alarm equipment.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger PointGard 3720**Dräger PointGard 3720 IR (Order Dräger PIR 7200 Sensor separatly)**

Dräger PointGard 3700/3720 IR AC Remote		1 / box	3728167
Dräger PointGard 3700/3720 IR DC Remote		1 / box	3728165
Dräger PointGard 3700/3720 IR AC Remote with green steady light		1 / box	3728166

Dräger PointGard 3700 IR compatible sensors

Dräger PIR 7200(NPT) HART®, complete set (stainless steal)		1 / box	6813055
Dräger PIR 7200(M25) HART®, complete set (stainless steal)		1 / box	6812290
Dräger PIR 7200(NPT) HART®, complete set (aluminum)		1 / box	6813050

The complete set includes the Ex d or e junction box, the splash guard, the status indicator and the mounting set, already pre-assembled.

Dräger PointGard 3000 Series common accessories

Mounting Bracket Set (not included in Dräger PointGard)		1 / box	8326497
Splash Guard		1 / box	6812510
Calibration Adapter for PIR 7200		1 / box	6811610
IR Connection Kit for PC configuration and upgrades		1 / box	4544197
LED steady light, green		1 / box	8326489
LED strobe light, blue		1 / box	8326472
AC Power Cable Brazil		1 / box	8326448
AC Power Cable Europe		1 / box	8326449
AC Power Cable UK		1 / box	8326450
AC Power Cable USA		1 / box	8326451
AC Power Cable Australia		1 / box	8326452

Toxic Gases & Oxygen Detectors

TECHNICAL DATA

Dräger PointGard 3700 IR

Type	Self-contained gas monitor with alarm devices for monitoring carbon dioxide ambient air	
Measuring ranges	0 to 10 vol. % (Standard)	
	0 to 2,000 ppm to 30 vol. % (configurable)	
	Up to 100 vol. % possible with decreased linearity.	
Electrical data		
Signal output analog	Normal operation	4–20 mA with HART
	Maintenance	Constant 3.4 mA or 4 mA ±1 mA 1 Hz modulation (adjustable)
	Fault	<1.2 mA
Power supply AC version	Operating voltage	100-240 VAC 50-60 Hz
	Nominal power	12 W
	Operating current (max)	0.5 A
	Inrush current	Max. 40 A at 230 VAC 50 Hz
Power supply DC version	Operating voltage	10-30 VDC
	Nominal power	12 W
	Operating current (max)	2.5 A
Electrical certification	CE rating, IEC/EN 61010-1	
	Complies with UL 61010-1	
	Class B device, residential use compliant with ICES-3(B)/ NMB-3(B)	
Relay specification	2 alarm relays and 1 fault relay	
	SPDT contact 5 A @ 230 VAC, 5 A @ 30 VDC, resistance bound	
	Alarm reset through front-mounted push button	
Alarm devices	Variants with amber and red LED strobes activate these on 2 alarm levels independently	
	Variants with green steady light activate red strobe on both alarm levels. Green steady light turns off during alarm or fault condition; optional blue LED strobe	
	85–105 dB adjustable-volume buzzer with continuous and pulsating tone. Side mounted horn silence button with adjustable resound time.	
Display and controls		
LCD Display	75 mm/3" backlit graphic LC display	
	Selectable red or green illumination, alphanumeric	
Indicators	3 status LEDs (green/yellow/red)	
Operation	Through three front mounted push buttons	
Security	Separate passwords for maintenance and configuration menu	

Toxic Gases & Oxygen Detectors

Technical Data

Functions	Event and data logger with a capacity of up to 35,000 records
	Warning and error messages displayed in plain text
	Passwordless bump-test mode inhibits alarms
	Automatic calibration mode for zero and span
Housing	
Material	Glass fiber reinforced polyester (GFRP)
Mounting	Wall mount with internal screws or optional SS mounting brackets
Housing protection type	IP66; indoor or outdoor use
Housing certification	UL 508A/50/50E; CSA C22.2 94.1/94.2/14-13
Cable entry point	3 cable glands, 1/2" NPT
Size (L x W x D)	255 x 280 x 120 mm/10 x 11 x 4.7"
Weight	3.8 kg / 8.4 lbs
Environmental conditions	
Temperature (storage)	-20 to +65 °C/-4 to +149 °F
Temperature (operation)	-20 to +50 °C/-4 to +122 °F
Pressure	20.7 to 38.4" Hg/700 to 1,300 hPa
Humidity	0 to 95% r. h., noncondensing

Electrochemical Sensors for Fixed Gas Detection

Toxic Gases & Oxygen Detectors

Electrochemical (EC) DrägerSensors® for Fixed Gas Detectors

When you need to selectively measure the smallest concentrations of airborne toxic gases and oxygen under ambient conditions, Electrochemical DrägerSensors are your answer. These long-life EC sensors for Dräger transmitters offer fast response times, high accuracy, and unmatched stability.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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DrägerSensors®

Electrochemical DrägerSensors®			
DrägerSensor® Cl ₂ Chlorine 0-50 ppm		1 / box	6809665
DrägerSensor® CO 0-1000 ppm		1 / box	6809605
DrägerSensor® CO LS Carbon Monoxide 0-5000 ppm		1 / box	6809620
DrägerSensor® CO LH Carbon Monoxide 0-300 ppm		1 / box	6812570
DrägerSensor® COCl ₂ Phosgene 0-20 ppm		1 / box	6809930
DrägerSensor® H ₂ 0-3000 ppm		1 / box	6809685
DrägerSensor® H ₂ O ₂ LC Hydrogen Peroxide 0-300 ppm		1 / box	6809705
DrägerSensor® H ₂ S Hydrogen Sulfide 0-100 ppm		1 / box	6810435
DrägerSensor® H ₂ S HC Hydrogen Sulfide 0-1000 ppm		1 / box	6809710
DrägerSensor® H ₂ S LC Hydrogen Sulfide 0-100 ppm		1 / box	6809610
DrägerSensor® H ₂ S Hydrogen Sulfide 0-100 ppm SensorAlive		1 / box	6814014
DrägerSensor® HCl Hydrogen Chloride 0-100 ppm		1 / box	6809640
DrägerSensor® HCN LC Hydrogen Cyanide 0-50 ppm		1 / box	6813200
DrägerSensor® PH ₃ /AsH ₃ Phosphine/Arsine 0-10 ppm		1 / box	6809695
DrägerSensor® Hydride 0-20 ppm		1 / box	6809635
DrägerSensor® Hydride SC 0-0.5 ppm		1 / box	6809980
DrägerSensor® N ₂ H ₄ Hydrazine		1 / box	6810180
DrägerSensor® NH ₃ TH Ammonia 0-10000 ppm		1 / box	6800055
DrägerSensor® NH ₃ HC Ammonia 0-1000 ppm		1 / box	6809645
DrägerSensor® NH ₃ LC Ammonia 0-300 ppm		1 / box	6809680
DrägerSensor® NH ₃ TL Ammonia 0-300 ppm		1 / box	6813095
DrägerSensor® NH ₃ FL Ammonia 0-300 ppm		1 / box	6813260
DrägerSensor® NO LC Nitric Oxide 0-200 ppm		1 / box	6809625
DrägerSensor® NO ₂ Nitrogen Dioxide 0-100 ppm		1 / box	6809655
DrägerSensor® NO ₂ LC Nitrogen Dioxide 0-20 ppm		1 / box	6813205
DrägerSensor® O ₂ Oxygen 0-100% Vol		1 / box	6809720
DrägerSensor® O ₂ LS Oxygen 0-25% Vol		1 / box	6809630
DrägerSensor® O ₃ Ozone 0-5 ppm		1 / box	6814005
DrägerSensor® OV1 Organic Vapors 0-200 ppm		1 / box	6810740
DrägerSensor® OV2 Organic Vapors 0-100 ppm		1 / box	6810745
DrägerSensor® SO ₂ Sulfur Dioxide 0-10 ppm		1 / box	6809660

Toxic Gases & Oxygen Detectors

Optional Dräger Filter available for:

DrägerSensor®	Part number	DrägerFilter	Part number	Absorbs
DrägerSensor® CO	6809605	A2F	6809684	H ₂ S, NO, NO ₂ , SO ₂ , Hydrocarbons
DrägerSensor® CO LS	6809620			
DrägerSensor® CO	6809605	D3F	6812435	Hydrocarbons
DrägerSensor® CO LS	6809620			
DrägerSensor® H ₂	6809685			
DrägerSensor® SO ₂	6809660	K1F	6809663	H ₂ S
DrägerSensor® COCl ₂	6809930	K2F	6809933	H ₂ S, HCl, O ₃
DrägerSensor® HCN	6809650	BF	6809653	H ₂ S, SO ₂ , NO, B ₂ H ₆
DrägerSensor® Hydrides	6809635*			
DrägerSensor® Hydrides SC	6809980*			
DrägerSensor® Hydrides	6809635*	HSF	6809862	Styrene
DrägerSensor® HCl	6809640	NF	6809643	Noise due to flow

* Restriction with some target gases to be considered.

Use of Dräger Filter forbidden for:

Warning: These sensors don't allow any dust or selective filter.

Nothing to be installed in front of the sensor to achieve maximum sensitivity.

DrägerSensor	Part number
DrägerSensor® HCl	6809640
DrägerSensor® H ₂ O ₂ LC	6809705
DrägerSensor® H ₂ O ₂ HC	6809675
DrägerSensor® ClH ₂ O ₂	6809665
DrägerSensor® Ozone	6814005
DrägerSensor® Hydrazine	6810180

Dräger SensorAlive H₂S®

Self-testing sensor for Polytron transmitters

The Dräger SensorAlive is an electrochemical sensor with an integrated gas generator. The gas generator enables daily automatic sensor testing with hydrogen sulfide (H₂S) as the test gas. It also alerts when the sensor inlet is clogged, preventing gas from reaching the sensor. Daily bump tests help to improve the safety of your gas detection system and allow for extended preventive maintenance intervals.

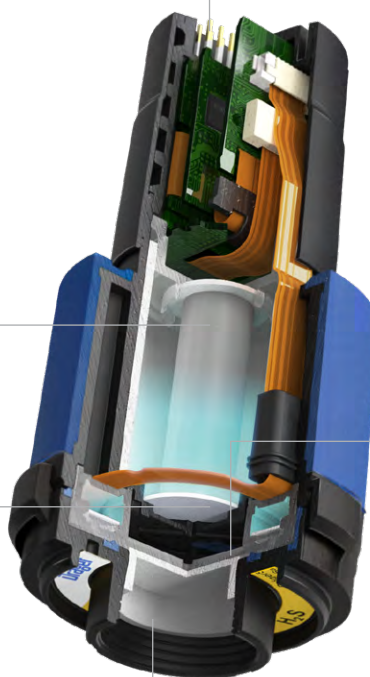
Interface

Electrochemical Sensor

Gas permeable membrane

Gas generator

Replaceable dust filter



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger SensorAlive H₂S®

Dräger SensorAlive H ₂ S®		1 / box	6814014
Bayonet Ring Dräger SensorAlive (required for new install)		1 / box	6800132
Calibration adapter Viton® / FKM		1 / box	6810536
Gassing adapter PE		1 / box	4509314
Sensor Diagnostic Dongle (recommended for new install)		1 / box	8317860
Viton® is a trademark of the DuPont company.		1 / box	6809685
Compatible Transmitters			
Dräger Polytron® 8100 EC d A 4-20/HART®		1 / box	8344403
Dräger Polytron® 8100 EC d A 4-20/HART® relay		1 / box	8344404
Dräger Polytron® 8100 EC d S 4-20/HART®		1 / box	8344412
Dräger Polytron® 8100 EC d S 4-20/HART® relay		1 / box	8344413
PointGard 3100 EC DC		1 / box	3728174
PointGard 3100 EC AC green		1 / box	3728175
PointGard 3100 EC AC		1 / box	3728176
PointGard 3100 EC DC green		1 / box	3730935

Technical Data

Measuring gas	H ₂ S
Measuring ranges	
Max. full scale value	100 ppm
Default full scale value	50 ppm
Min. full scale value 10 ppm	10 ppm
Lower detection limit (LDL)	0.5 ppm
Alarm response time	
Typical response at room temperature and use of a calibration or gassing adapter at a flow of 0.5 l/min.	
for gassing with 5-fold alarm threshold, t _{0...20} ≤ 15 sec.	10 to 30 V DC, 3-wire
for gassing with 1.6-fold alarm threshold, t _{0...63} ≤ 30 sec.	w/o relay, non-remote

Toxic Gases & Oxygen Detectors

Technical Data

Calibration	
Calibration interval (default)	6 months (maximum configurable to 360 days)
Setting range min./ max.	1 day/ 12 months
Warm-up time	
Sensor ready for use after max. 5 min.	5 min
Sensor ready for calibration after max.	10 min. (ready for first LifeTest after 4 days)
Measurement accuracy	
Uncertainty of measurement (of the measured value) or minimum (the greater value applies)	≤ ±3 % ≤ ±0.5 ppm
Expected life in ambient air	> 36 months (sensor continues to operate after gas generator is depleted)
Environmental conditions	
Temperature operation	-40 to +65 °C (-40F to +149F)
Temperature self-test	-40 to +60 °C (-40 to 140F)
Ambient pressure	± 3%
Relative humidity	5 to 95%
Storage Conditions	
Packed, temperature min./ max.	0 to +40 °C (32 to 104F)
Dimensions	
Polytron 8100 with SensorAlive	5.8" x 5.1" x 13" / 148 x 129 x 330 mm (length x depth x height)
Approvals	
ATEX	II 1G Ex ia IIC T6/T4 Ga II 1D Ex ia IIIC T135°C Da (-40°C < Ta < +40/70°C)
IECEX	Ex ia IIC T6/T4 Ga Ex ia IIIC T135°C Da (-40°C < Ta < +40/70°C)
UL & 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

Performance approved in accordance with IEC / EN 62990-1 (in connection with the respective measuring heads or transmitters).
All data are typical values, apply to new sensors and ambient conditions of 20 °C, 50 % r.h. and 1013 mbar.
SensorAlive is SIL 2 certified by TÜV Süd when used with Polytron 8100 transmitter.

Photoionization Sensor Transmitter for VOCs

Toxic Gases & Oxygen Detectors

Falco PID – Fixed VOC Gas Detection Toxic Gas Detection Transmitter

The ION Science Falco is an explosion proof transmitter for the continuous monitoring of volatile organic compounds (VOC) in ambient air. Its integrated PID (Photoionization Detector) sensor is extremely sensitive down to fractions of ppm yet resistant to extreme industrial conditions. An optional built in sampling pump extends its application scope.



Toxic Gases & Oxygen Detectors

Product	Description	Packaging unit/type	Order No.
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Falco PID**Falco PID Transmitters (includes calibration adapter)**

Falco PID 10.6 eV 0.001-10 ppm diffusion operation	3723224
Falco PID 10.6 eV 0.001-10 ppm with integrated pump	3723223
Falco PID 10.6 eV 0.01-50 ppm diffusion operation	3723222
Falco PID 10.6 eV 0.01-50 ppm with integrated pump	3723221
Falco PID TAC 10.0 eV 0.01-50 ppm diffusion operation	3723220
Falco PID TAC 10.0 eV 0.01-50 ppm with integrated pump	3723219
Falco PID 10.6 eV 0.1-1000 ppm diffusion operation	3706183
Falco PID 10.6 eV 0.1-1000 ppm with integrated pump	3706179
Falco PID 10.6 eV 0.1-3000 ppm diffusion operation	3723218
Falco PID 10.6 eV 0.1-3000 ppm with integrated pump	3723217

Falco PID Transmitters (includes calibration adapter)

Magnetic wand Falco PID	3706186
Process adapter Falco PID for diffusion model	3702619
Stainless steel stopping plug for unused housing port	3706189
Cylinder regulator 500 cc 5/8"-18 UNF Brass	4557020
Zero Air Cal Gas 20.9% O2 bal N2 103L	4510058
Cal gas isobutylene (C ₄ H ₈) 5 ppm 103L	3700261
Cal gas isobutylene (C ₄ H ₈) 100 ppm 103L	3701256

Falco PID Transmitters (includes calibration adapter)

MiniPID 2 Falco white 10-1000 ppm	3706185
MiniPID 2 Falco orange 50-3000 ppm	3723736
MiniPID 2 Falco TAC 0.1-50ppm	3723730
Electrode set white (0.1-10ppm & 0.1-1000ppm)	MD29346
Electrode set orange (0.1-50ppm & 0.1-3000ppm)	3703373
Electrode set Falco TAC 0.1-50ppm	3723724
UV lamp 10.6 eV PID Falco	3706176
UV lamp cleaning kit Falco	3706178
Opening tool PID Falco Sensor	3706184
PTFE filter disc PID Falco diffusion	3706177
Moisture filter PID Falco pump oper.	3706188

Toxic Gases & Oxygen Detectors

Chemical name	CAS no.	Falco 0.1-1000 ppm range	Chemical name	CAS no.	Falco 0.1-1000 ppm range
Falco PID 10.6 eV abridged list of detectable VOCs					
Acetamide	60-35-5	0.2 - 1000 ppm	Furfural	98-01-1	0.1 - 800 ppm
Acetic anhydride	108-24-7	0.4 - 1000 ppm	Furfuryl alcohol	98-00-0	0.2 - 1000 ppm
Acetoin	513-86-0	0.1 - 1000 ppm	Gasoline	8006-61-9	0.1 - 900 ppm
Acetone	67-64-1	0.1 - 1000 ppm	Glutaraldehyde	111-30-8	0.1 - 900 ppm
Acetophenone	98-86-2	0.1 - 600 ppm	Heptan-2-one	110-43-0	0.1 - 900 ppm
Acrolein	107-02-8	0.3 - 1000 ppm	Heptane	142-82-5	0.2 - 1000 ppm
Allyl acetoacetate	1118-84-9	0.2 - 1000 ppm	Heptanol	53535-33-4	0.2 - 1000 ppm
Allyl alcohol	107-18-6	0.2 - 1000 ppm	Hexamethyldisilazane, 1,1,1,3,3,3-	999-97-3	0.1 - 500 ppm
Allyl chloride	107-05-1	0.5 - 1000 ppm	Hexamethyldisiloxane	107-46-0	0.1 - 300 ppm
Allyl glycidyl ether	106-92-3	0.1 - 800 ppm	Hexamethylene diisocyanate	822-06-0	0.2 - 1000 ppm
Amyl acetate, sec-	628-63-7	0.2 - 1000 ppm	Hexan-2-one	591-78-6	0.1 - 800 ppm
Amyl alcohol	71-41-0	0.3 - 1000 ppm	Hexane	110-54-3	0.3 - 1000 ppm
Aniline	62-53-3	0.1 - 500 ppm	Hexanol	111-27-3	0.2 - 1000 ppm
Anisole	100-66-3	0.1 - 600 ppm	Hexene, 1-	592-41-6	0.1 - 1000 ppm
Benzaldehyde	100-52-7	0.1 - 700 ppm	Hydrazine	302-01-2	0.3 - 1000 ppm
Benzene	71-43-2	0.1 - 500 ppm	Hydrogen sulfide	2148878	0.4 - 1000 ppm
Benzoic acid	65-85-0	0.1 - 700 ppm	Indene	95-13-6	0.1 - 500 ppm
Benzonitrile	100-47-0	0.1 - 700 ppm	Indole	120-72-9	0.1 - 400 ppm
Benzoquinone, p-	106-51-4	0.1 - 1000 ppm	Iodine	7553-56-2	0.1 - 200 ppm
Benzyl acetate	140-11-4	0.1 - 600 ppm	Iodoform	75-47-8	0.2 - 1000 ppm
Benzyl alcohol	100-51-6	0.1 - 1000 ppm	Iodomethane	74-88-4	0.1 - 400 ppm
Benzyl chloride	100-44-7	0.1 - 700 ppm	Isobornyl acetate	125-12-2	0.1 - 500 ppm
Benzyl formate	104-57-4	0.1 - 800 ppm	Isobutyl acetate	110-19-0	0.2 - 1000 ppm
Benzyl isobutyrate	103-28-6	0.1 - 500 ppm	Isobutylene	115-11-7	0.1 - 1000 ppm
Benzyl nitrile	140-29-4	0.1 - 1000 ppm	Isooctane	540-84-1	0.1 - 1000 ppm
Benzylamine	100-46-9	0.1 - 600 ppm	Isopentanol	137-32-6	0.2 - 1000 ppm
Biphenyl	92-52-4	0.1 - 400 ppm	Isoprene	78-79-5	0.1 - 900 ppm
Bromo-2-chloroethane, 1-	107-04-0	0.3 - 1000 ppm	Isopropanol	67-63-0	0.4 - 1000 ppm
Bromo-2-methylpentane, 1-	25346-33-2	0.2 - 1000 ppm	Isopropyl acetate	108-21-4	0.2 - 1000 ppm
Bromoacetone	598-31-2	0.1 - 1000 ppm	Isopropylamine	75-31-0	0.1 - 1000 ppm
Bromobenzene	108-86-1	0.1 - 300 ppm	Isovaleraldehyde	590-86-3	0.1 - 1000 ppm
Bromobutane, 1-	109-65-9	0.2 - 1000 ppm	Jet Fuel JP-5		0.1 - 700 ppm
Bromoethane	74-96-4	0.2 - 1000 ppm	Kerosene	8008-20-6	0.1 - 800 ppm
Bromoethyl methyl ether, 2-	6482-24-2	0.3 - 1000 ppm	Linalyl acetate	115-95-7	0.1 - 1000 ppm

Toxic Gases & Oxygen Detectors

Chemical name	CAS no.	Falco 0.1-1000 ppm range	Chemical name	CAS no.	Falco 0.1-1000 ppm range
Bromoform	75-25-2	0.3 - 1000 ppm	Menthol	1490-04-6	0.1 - 500 ppm
Bromopentane, 1-	110-53-2	0.1 - 1000 ppm	Mercaptoacetic acid	68-11-1	0.1 - 1000 ppm
Bromopropane, 1-	106-94-5	0.2 - 1000 ppm	Methacrylamide	79-39-0	0.2 - 1000 ppm
Butadiene diepoxide, 1,3-	1464-53-5	0.4 - 1000 ppm	Methacrylic acid	79-41-4	0.2 - 1000 ppm
Butadiene, 1,3-	106-99-0	0.1 - 800 ppm	Methoxy-1-butanol, 3-	2517-43-3	0.3 - 1000 ppm
Butanedione, 2,3-	431-03-8	0.1 - 900 ppm	Methoxyethane	540-67-0	0.1 - 1000 ppm
Butanol, 1-	71-36-3	0.4 - 1000 ppm	Methoxyethanol, 2-	109-86-4	0.3 - 1000 ppm
Buten-3-ol, 1-	598-32-3	0.2 - 1000 ppm	Methoxyethene	107-25-5	0.1 - 1000 ppm
Butene, 1-	106-98-9	0.2 - 1000 ppm	Methoxypropane, 2-	598-53-8	0.1 - 1000 ppm
Butenoic acid, 3-	107-93-7	0.2 - 1000 ppm	Methoxypropyl acetate	108-65-6	0.2 - 1000 ppm
Butoxyethanol, 2-	111-76-2	0.1 - 1000 ppm	Methyl acetoacetate	105-45-3	0.3 - 1000 ppm
Butoxyethylacetate, 2-	112-07-2	0.2 - 1000 ppm	Methyl acrylate	96-33-3	0.4 - 1000 ppm
Butyl acetate	123-86-4	0.3 - 1000 ppm	Methyl benzoate	93-58-3	0.1 - 1000 ppm
Butyl acrylate	141-32-2	0.2 - 1000 ppm	Methyl bromide	74-83-9	0.2 - 1000 ppm
Butyl butyrate	109-21-7	0.2 - 1000 ppm	Methyl ethyl ketone	78-93-3	0.1 - 1000 ppm
Butyl chloroformate	592-34-7	0.3 - 1000 ppm	Methyl ethyl ketone peroxides	1338-23-4	0.1 - 800 ppm
Butyl ether, n-	142-96-1	0.1 - 800 ppm	Methyl isobutyl ketone	108-10-1	0.1 - 900 ppm
Butyl iodide	542-69-8	0.1 - 1000 ppm	Methyl isopropyl ketone	563-80-4	0.1 - 1000 ppm
Butyl isocyanate	111-36-4	0.3 - 1000 ppm	Methyl isothiocyanate	556-61-6	0.1 - 600 ppm
Butyl mercaptan, tert-	75-66-1	0.1 - 600 ppm	Methyl mercaptan	74-93-1	0.1 - 700 ppm
Butyl methacrylate	97-88-1	0.1 - 1000 ppm	Methyl methacrylate	80-62-6	0.1 - 1000 ppm
Butyl propionate, n-	590-01-2	0.2 - 1000 ppm	Methyl phenyl acetate	101-41-7	0.1 - 400 ppm
Butylamine, n-	109-73-9	0.1 - 1000 ppm	Methyl propionate	554-12-1	0.4 - 1000 ppm
Butylbenzene	104-51-8	0.1 - 500 ppm	Methyl salicylate	119-36-8	0.1 - 800 ppm
Butylphenol, o-sec-	89-72-5	0.1 - 900 ppm	Methyl sulfide	75-18-3	0.1 - 800 ppm
Butyraldehyde	123-72-8	0.2 - 1000 ppm	Methyl tert-butyl ether	1634-04-4	0.1 - 1000 ppm
Camphene	565-00-4	0.1 - 500 ppm	Methyl vinyl ketone	78-94-4	0.1 - 600 ppm
Carbon disulfide	75-15-0	0.1 - 1000 ppm	Methyl-1-butene, 3-	563-45-1	0.1 - 800 ppm
Carbon tetrabromide	558-13-4	0.3 - 1000 ppm	Methyl-2-butanol, 3-	598-75-4	0.3 - 1000 ppm
Carene	13466-78-9	0.1 - 500 ppm	Methyl-2-pyrrolidinone, N-	872-50-4	0.1 - 900 ppm

Toxic Gases & Oxygen Detectors

Chemical name	CAS no.	Falco 0.1-1000 ppm range	Chemical name	CAS no.	Falco 0.1-1000 ppm range
Carvacrol	499-75-2	0.1 - 800 ppm	Methylamine	74-89-5	0.2 - 1000 ppm
Carvone, R-	6485-40-1	0.2 - 1000 ppm	Methylbutanal, 2-	96-17-3	0.1 - 1000 ppm
Chloramine	10599-90-3	0.2 - 1000 ppm	Methylcyclohexane	108-87-2	0.1 - 1000 ppm
Chloro-2-propanone, 1-	78-95-5	0.1 - 1000 ppm	Methylcyclohexanol, 4-	589-91-3	0.2 - 1000 ppm
Chloroacetaldehyde	107-20-0	0.3 - 1000 ppm	Methylcyclopentane	96-37-7	0.2 - 1000 ppm
Chlorobenzene	108-90-7	0.1 - 500 ppm	Methylhexan-2-one, 5-	541-85-5	0.1 - 800 ppm
Chlorocyclohexane	542-18-7	0.2 - 1000 ppm	Methylhydrazine	60-34-4	0.1 - 1000 ppm
Chloroethyl methyl ether, 2-	627-42-9	0.3 - 1000 ppm	Methylpentane, 2-	107-83-5	0.3 - 1000 ppm
Chloroethyl methyl ether, 2-	627-42-9	0.3 - 1000 ppm	Methylpyrrole, N-	96-54-8	0.1 - 900 ppm
Chloromethoxyethane	3188-13-4	0.4 - 1000 ppm	Methylstyrene	25013-15-4	0.1 - 500 ppm
Chloroprene	126-99-8	0.1 - 1000 ppm	Mineral spirits	64475-85-0	0.1 - 800 ppm
Chlorostyrene, o-	2039-87-4	0.1 - 400 ppm	Morpholine	110-91-8	0.4 - 1000 ppm
Chlorotoluene, p-	106-43-4	0.1 - 400 ppm	Naphthalene	91-20-3	0.1 - 400 ppm
Chlorotrifluoroethylene	79-38-9	0.1 - 1000 ppm	Nitrobenzene	98-95-3	0.2 - 1000 ppm
Citronellal	106-23-0	0.1 - 900 ppm	Nonane	111-84-2	0.1 - 1000 ppm
Creosote	8021-39-4	0.1 - 1000 ppm	Norbornadiene, 2,5-	121-46-0	0.1 - 600 ppm
Cresol, m-	108-39-4	0.2 - 1000 ppm	Octane	111-65-9	0.2 - 1000 ppm
Cumene	6117-91-5	0.1 - 800 ppm	Octanol (mixed isomers)	111-87-5	0.2 - 1000 ppm
Cyclohexane	110-82-7	0.1 - 1000 ppm	Octene, 1-	111-66-0	0.1 - 700 ppm
Cyclohexanol	108-93-0	0.2 - 1000 ppm	Oxydiethanol, 2,2'-	111-46-6	0.2 - 1000 ppm
Cyclohexanone	108-94-1	0.1 - 1000 ppm	Pentan-2-one	107-87-9	0.1 - 1000 ppm
Cyclohexene	110-83-8	0.1 - 900 ppm	Pentanal	110-62-3	0.2 - 1000 ppm
Cyclohexylamine	108-91-8	0.3 - 1000 ppm	Pentandione, 2,4-	123-54-6	0.1 - 1000 ppm
Cyclopentadiene	542-92-7	0.1 - 800 ppm	Pentanol, 2-	6032-29-7	0.2 - 1000 ppm
Cymene, p-	99-87-6	0.1 - 400 ppm	Perfluorobutadiene	685-63-2	0.3 - 1000 ppm
Decahydronaphthalene	91-17-8	0.1 - 900 ppm	Petroleum ether	8032-32-4	0.1 - 900 ppm
Decane	124-18-5	0.1 - 1000 ppm	Phenol	108-95-2	0.1 - 900 ppm
Diacetone alcohol	123-42-2	0.1 - 900 ppm	Phenoxyethanol, 2-	122-99-6	0.5 - 1000 ppm
Dibromoethane, 1,2-	106-93-4	0.2 - 1000 ppm	Phenylethyl acetate, 1-	93-92-5	0.1 - 700 ppm
Dibromomethane	74-95-3	0.2 - 1000 ppm	Phosphine	7803-51-2	0.2 - 1000 ppm
Dichloro-1,2-difluoroethene, 1,2-	598-88-9	0.2 - 1000 ppm	Picoline, 3-	108-99-6	0.1 - 700 ppm
Dichloro-1-propene, 2,3-	78-88-6	0.1 - 1000 ppm	Pinene, α-	2437-95-8	0.1 - 300 ppm
Dichloro-2,2-difluoroethene, 1,1-	79-35-6	0.1 - 1000 ppm	Piperidine	110-89-4	0.1 - 1000 ppm

Toxic Gases & Oxygen Detectors

Chemical name	CAS no.	Falco 0.1-1000 ppm range	Chemical name	CAS no.	Falco 0.1-1000 ppm range
Dicyclopentadiene	77-73-6	0.1 - 700 ppm	Propen-1-imine, 2-	73311-40-7	0.2 - 1000 ppm
Diesel fuel	68334-30-5	0.1 - 800 ppm	Propene	115-07-1	0.1 - 1000 ppm
Diethyl ether	60-29-7	0.1 - 1000 ppm	Propionaldehyde	123-38-6	0.2 - 1000 ppm
Diethyl malonate	105-53-3	0.4 - 1000 ppm	Propyl acetate, n-	109-60-4	0.3 - 1000 ppm
Diethyl phosphite	762-04-9	0.2 - 1000 ppm	Propylamine, n-	107-10-8	0.1 - 1000 ppm
Diethyl phthalate	84-66-2	0.1 - 1000 ppm	Propylbenzene	103-65-1	0.1 - 500 ppm
Diethyl sulfide	352-93-2	0.1 - 600 ppm	Propylene glycol ethyl ether acetate	98516-30-4	0.1 - 1000 ppm
Diethyl sulfone	597-35-3	0.2 - 1000 ppm	Propyleneimine	75-55-8	0.1 - 1000 ppm
Diethylamine	109-89-7	0.1 - 1000 ppm	Propyne	74-99-7	0.4 - 1000 ppm
Diethylaminoethanol, 2-	100-37-8	0.3 - 1000 ppm	Pyridine	110-86-1	0.1 - 700 ppm
Diethylene glycol monoethyl ether	111-90-0	0.1 - 600 ppm	Pyrrole	109-97-7	0.1 - 1000 ppm
Diethylsilane	542-91-6	0.2 - 1000 ppm	Pyrrolidine	123-75-1	0.4 - 1000 ppm
Dihydroxybenzene, 1,2-	120-80-9	0.1 - 1000 ppm	Styrene	100-42-5	0.1 - 500 ppm
Dihydroxybenzene, 1,3-	108-46-3	0.1 - 1000 ppm	Terpineol, α-	98-55-5	0.1 - 800 ppm
Dimethyl ether	115-10-6	0.1 - 1000 ppm	Tert-amyl methyl ether	994-05-8	0.1 - 800 ppm
Dimethylacetamide N,N-	127-19-5	0.1 - 1000 ppm	Tert-butanol	75-65-0	0.2 - 1000 ppm
Dimethylamine	124-40-3	0.2 - 1000 ppm	Tert-butyl bromide	507-19-7	0.1 - 1000 ppm
Dimethylaniline, NN-	121-69-7	0.1 - 600 ppm	Tetrachloroethylene	127-18-4	0.1 - 400 ppm
Dimethylformamide	68-12-2	0.1 - 1000 ppm	Tetraethyl orthosilicate	78-10-4	0.3 - 1000 ppm
Dimethylhydrazine, 1,1-	57-14-7	0.1 - 1000 ppm	Tetrahydrofuran	109-99-9	0.2 - 1000 ppm
Dimethylsilane	1111-74-6	0.2 - 1000 ppm	Tetrahydronaphthalene	119-64-2	0.1 - 400 ppm
Dioxane, 1,4-	142-84-7	0.2 - 1000 ppm	Tetrahydrothiophene	110-01-0	0.1 - 700 ppm
Dipropyl ether	111-43-3	0.1 - 1000 ppm	Tetramethyl orthosilicate	681-84-5	0.2 - 1000 ppm
Di-tert-butyl-p-cresol	128-37-0	0.1 - 300 ppm	Tetramethylbenzene (all isomers)	95-93-2	0.1 - 300 ppm
Divinylbenzene	1321-74-0	0.1 - 700 ppm	Tetramethylsilane	75-76-3	0.2 - 1000 ppm
Dodecene	112-40-3	0.1 - 1000 ppm	Thioacetic acid	507-09-5	0.2 - 1000 ppm
Ethanolamine	141-43-5	0.3 - 1000 ppm	Thiophene	110-02-1	0.1 - 500 ppm
Ethoxy-2-propanol, 1-	1569-02-4	0.2 - 1000 ppm	Titanium-n-propoxide	3087-37-4	0.3 - 1000 ppm
Ethoxyethanol, 2-	110-80-5	0.2 - 1000 ppm	Toluene	108-88-3	0.1 - 600 ppm
Ethoxyethyl acetate, 2-	111-15-9	0.3 - 1000 ppm	Toluene-2,4-diisocyanate	584-84-9	0.2 - 1000 ppm
Ethyl acetate	141-78-6	0.5 - 1000 ppm	Toluidine, o-	95-53-4	0.1 - 500 ppm
Ethyl acrylate	140-88-5	0.2 - 1000 ppm	Tributylamine	102-82-9	0.1 - 1000 ppm

Toxic Gases & Oxygen Detectors

Chemical name	CAS no.	Falco 0.1-1000 ppm range	Chemical name	CAS no.	Falco 0.1-1000 ppm range
Ethyl benzoate	93-89-0	0.1 - 900 ppm	Trichloroethylene	79-01-6	0.1 - 600 ppm
Ethyl butyrate	105-54-4	0.1 - 1000 ppm	Triethyl phosphate	78-40-0	0.4 - 1000 ppm
Ethyl cyanoacrylate	7085-85-0	0.2 - 1000 ppm	Triethyl silane	617-86-7	0.2 - 1000 ppm
Ethyl hexyl acrylate, 2-	103-11-7	0.1 - 1000 ppm	Triethylamine	121-44-8	0.1 - 1000 ppm
Ethyl iodide	75-03-6	0.1 - 300 ppm	Trimethylamine	75-50-3	0.1 - 500 ppm
Ethyl lactate	97-64-3	0.2 - 1000 ppm	Trimethylbenzene, 1,3,5-	108-67-8	0.1 - 400 ppm
Ethyl mercaptan	75-08-1	0.1 - 600 ppm	Trimethylsilane	993-07-7	0.1 - 1000 ppm
Ethyl methacrylate	97-63-2	0.1 - 1000 ppm	Trioxane	110-88-3	0.2 - 1000 ppm
Ethyl phenyl acetate	101-97-3	0.1 - 1000 ppm	Turpentine	9005-90-7	0.1 - 600 ppm
Ethyl tert-butyl ether	637-92-3	0.1 - 800 ppm	TVOC		0.1 - 1000 ppm
Ethylamine	75-04-7	0.1 - 1000 ppm	Undecane	1120-21-4	0.1 - 1000 ppm
Ethylbenzene	100-41-4	0.1 - 600 ppm	Vinyl acetate	108-05-4	0.2 - 1000 ppm
Ethylene glycol monopropyl ether	2807-30-9	0.3 - 1000 ppm	Vinyl chloride	75-01-4	0.2 - 1000 ppm
Ethyleneimine	151-56-4	0.2 - 1000 ppm	Vinyl-2-pyrrolidinone, 1-	88-12-0	0.5 - 1000 ppm
Ethylhexanal, 2-	123-05-7	0.2 - 1000 ppm	Vinylcyclohexene	100-40-3	0.1 - 500 ppm
Fluorobenzene	462-06-6	0.1 - 700 ppm	Xylene mixed isomers	1330-20-7	0.1 - 500 ppm
Formamide	75-12-7	0.2 - 1000 ppm	Xylidine, all	1300-73-8	0.1 - 700 ppm
Furan	110-00-9	0.1 - 400 ppm			

Toxic Gases & Oxygen Detectors

Technical Data

Sensor	Photoionization detector
Falco detection ranges and sensitivity with 10.6eV lamp fitted*	0.001 ppm – 10.0 ppm
	0.01 ppm – 50.0 ppm
	0.1 ppm – 1000 ppm
	1 ppm – 3000 ppm
Falco TAC detection ranges and sensitivity with 10.0eV lamp fitted*	0.01 ppm – 50.0 ppm
Response time (T90)	Diffused models: <30 seconds**
Accuracy	± 5% or ± 1 digit
User interface	OLED high contrast white on black: 128 x 64 pixels
	Screen size: 35 mm (w) x 17.5 mm (h)
	5 magnetic switches with LED confirmation (up, down, left, right & enter).
Status indicator	Bright visible status indicator: RED, AMBER, GREEN
Output	4 – 20 mA
	2 programmable relays
	RS 485 Modbus®
Falco diffused environmental specification	
Operational temperature:	-40 °C to 50 °C (-40 °F to 122 °F) 0-100% RH and condensing humidity
Storage temperature:	-40 °C to 60 °C (-40 °F to 140 °F)
Falco pumped environmental specification	
Operational temperature:	-20 °C to 50 °C (-40 °F to 122 °F) 0-100% RH and condensing humidity
Storage temperature:	-20 °C to 60 °C (-40 °F to 140 °F)
Ingress Protection	
Main unit	IP65
Sensor head	IP65
Power	Working voltage: 12 to 40 VDC Typical 2 W, Max. 7 watts
Mechanical interface	2 x cable entry points with 3/4" NPT threads (left and right)
Mounting points	2 x M8
Weight & Dimensions	– Diffusion 2.9 kg (6.4 lb) – Pumped 3.3 kg (7.3 lb) – Diffusion 205 (h) x 180 (w) x 125 (d) mm (8.1" x 7.1" x 4.9") – Diffusion 291 (h) x 191 (w) x 125 (d) mm (11.5" x 7.5" x 4.9")
EMC	– EMC Directive 2014/30/EU
Certification	II 2G db ib IIC T4 Gb Class 1, Div 1 Groups ABCD T4 ISO9001:2015

* All specifications quoted are at calibration point and under the same ambient conditions. Specifications are based on isobutylene calibration at 20 °C and 1000 mBar.

** When set to continuous measurement

Modbus® is a registered trademark of Schneider Electric



Flame Detectors

Dräger

Technology for Life

Flame Detectors

FLAME DETECTORS

Multispectrum Infrared Flame Detection

Flame 1500	125
Flame 1750	128

Visual Flame Detection

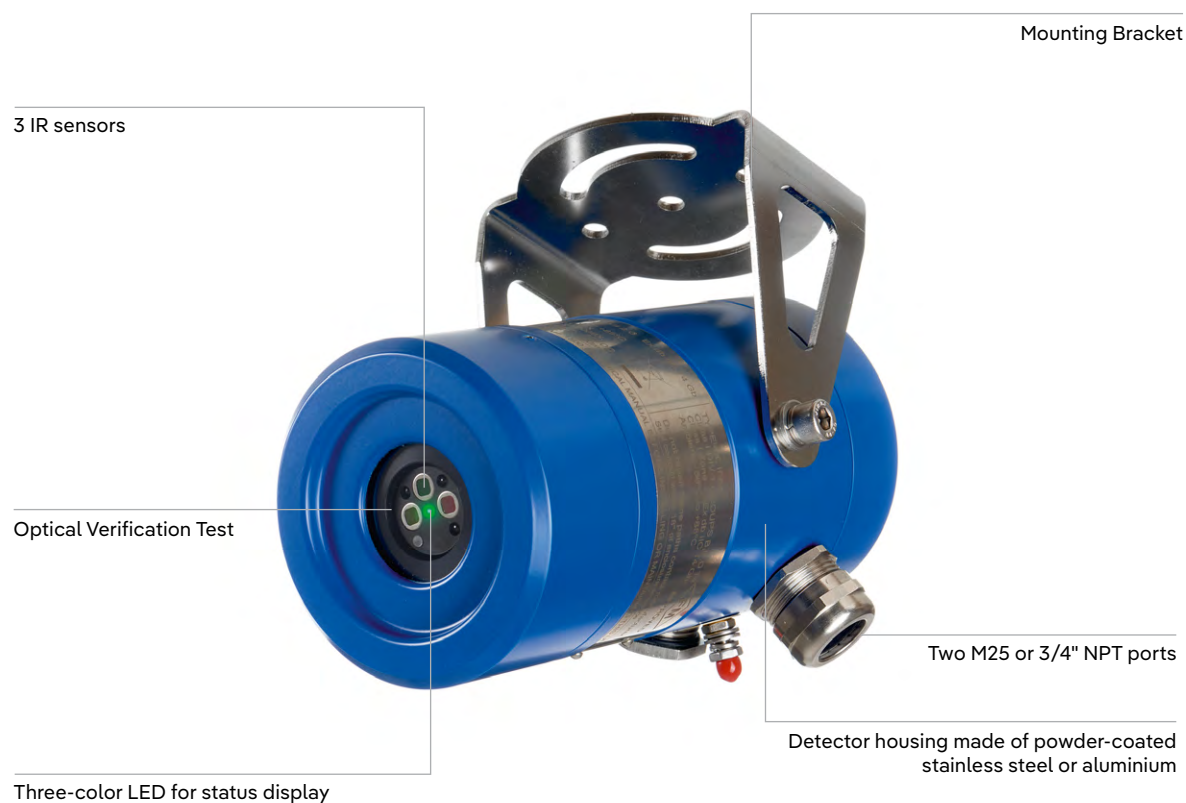
Flame 3000	132
Flame 5000	135

Multispectrum Infrared Flame Detection

Flame Detectors

Dräger Flame 1500 (IR3) Flame Detection

The Dräger Flame 1500 flame detector uses its triple IR sensor to detect hydrocarbon fires even at great distances. It provides excellent false alarm immunity as approved by FM while maintaining a response time of under 4 seconds.



Flame Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Flame 1500

Dräger Flame 1500 (includes standard mounting bracket, no blind plugs)

Dräger Flame 1500, Aluminum, 2 x M25	3721519
Dräger Flame 1500, Aluminum, 2 x ¾" NPT	3721517
Dräger Flame 1500, Stainless Steel, 2 x M25	3721518
Dräger Flame 1500, Stainless Steel, 2 x ¾" NPT	3721516

Accessories

Dräger FS-5000 Flame Simulator	4209307
Bracket Marine – 316 stainless steel	3701298
Sunshield – Flame 1x00/3x00/5x00	3701299
Mount Kit – 2" pole	3701300
Mount Kit – 3" pole	3701301
Mount Kit – 4" pole	3701302

Technical Data

Dräger Flame 1500

Type	Explosion-proof multi-spectrum (triple) IR flame detector	
Spectral range	Three wavelengths in the range from 3 μm to 8 μm	
Field of view	Horizontal 90°, vertical 90°	
Response time	4 seconds (typical)	
Sensitivity settings	Low 15 m, Medium 30 m (standard) and High 60 m	
Measuring range*	n-Heptane/gasoline	60 m (200 ft)
	Methanol	42 m (136 ft)
	Methane	50 m (165 ft)
*Fire pan 0.1 m²(1ft²), flaring fire 0.6 m (3 ft)		

Flame Detectors

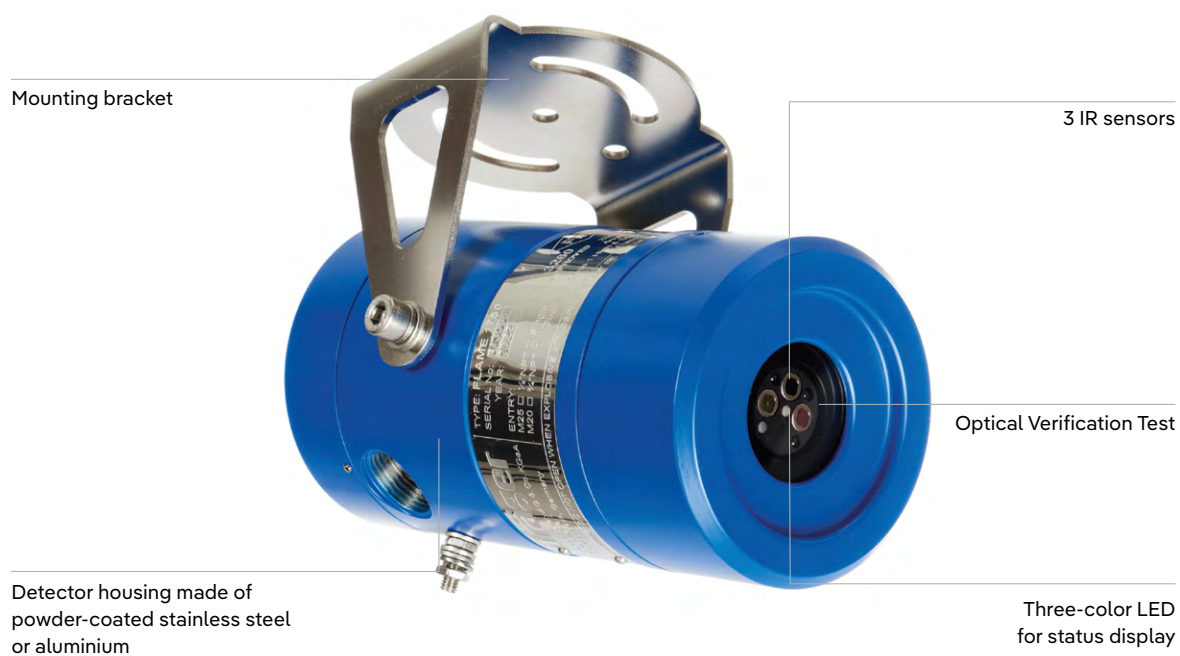
Technical Data

Electrical data	
Relay	Alarm and fault
Signal output	0 to 20 mA
Communication	RS485, HART® 7
Supply voltage	24 VDC nominal (18 to 32 VDC)
Power consumption	Minimum 3 W / maximum 12 W with heating
Housing	
Material	Aluminum or stainless steel, powder-coated
Cable gland	Dual M25 or ¾"NPT
Weight	2.5 kg (5.5 lbs.) Aluminum or 6 kg (13.2 lbs.) stainless steel
Protection class	IP66, NEMA 4X
Environmental conditions	
Temperature	-60 to +85 °C (-76 to +185 °F)
Approvals	
ATEX	Ex II 2 G Ex db IIC T4 Gb IP66, EN54-10 Class 1
IECEX	Ex II 2 G Ex db IIC T4 Gb IP66, FME 07.0002
FM/FMC	FM 3260 performance approval
	Class 1 Zone 1 AEx db IIC T4
	Class 1 Div. 1, Groups B, C, D T4
EAC TR CU	Pending
CCCF	Pending
INMETRO, PESO, etc.	Pending
Functional Safety	SIL2 certified
DNV-GL Marine.	Pending

Flame Detectors

Dräger Flame 1750 (IR3) Hydrogen and Hydrocarbon Flame Detection

The Dräger Flame 1750 flame detector uses its triple IR sensor specifically tuned for detection of hydrogen fires while also detecting hydrocarbon fires even at great distances. It provides excellent false alarm immunity as approved by FM while maintaining a response time of under 4 seconds.



Flame Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Flame 1750

Dräger Flame 1750 (includes standard mounting bracket, no blind plugs)

Dräger Flame 1750, Aluminum, 2 x M25	3724447
Dräger Flame 1750, Aluminum, 2 x ¾" NPT	3724445
Dräger Flame 1750, Stainless Steel, 2 x M25	3724446
Dräger Flame 1750, Stainless Steel, 2 x ¾" NPT	3724444

Accessories

Dräger FS-5000 Flame Simulator	4209307
Bracket Marine – 316 stainless steel	3701298
Sunshield – Flame 1x00/3x00/5x00	3701299
Mount Kit – 2" pole	3701300
Mount Kit – 3" pole	3701301
Mount Kit – 4" pole	3701302

Technical Data

Dräger Flame 1750 H₂

Type	Explosion-proof IR flame detector	
Spectral range	Three wavelengths in the range from 2 µm to 4 µm	
Field of view	Horizontal 90°, vertical 90°	
Response time	4 seconds (typical)	
Sensitivity settings	Standard (30 m) and High (40 m)	
Measuring range*	Hydrogen	40 m (131 ft)
	n-Heptane	12 m (30 ft)
	Methane	30 m (100 ft)

*Fire pan 0.1 m² (1ft²), flare 0.6 m (3 ft)

Flame Detectors

Technical Data

Electrical data	
Relay	Alarm and fault
Signal output	0 to 20 mA
Communication	RS485, HART® 7
Supply voltage	24 VDC nominal (18 to 32 VDC)
Power consumption	Minimum 3 W / maximum 12 W with heating
Housing	
Material	Aluminum or stainless steel, powder-coated
Cable gland	Dual M25 or ¾"NPT
Weight	2.5 kg (5.5 lbs.) Aluminum or 6 kg (13.2 lbs.) stainless steel
Protection class	IP66, NEMA 4X
Environmental conditions	
Temperature	-60 to +85 °C (-76 to +185 °F)
Approvals	
ATEX	Ex II 2 G Ex db IIC T4 Gb IP66
IECEX	Ex II 2 G Ex db IIC T4 Gb IP66
FM/FMC	Class 1 Zone 1 AEx db IIC T4
	Class 1 Div. 1, Groups B, C, D T4
EAC TR CU	Requested
CCCF	Requested
INMETRO, PESO, etc.	On request
Functional Safety	SIL2 (IEC 61508-1-3)
Certificate of conformity of the measuring functionality	EN 54-10 (VdS)

Visual Flame Detection

Flame Detectors

Dräger Flame 3000 Flame Detection

The Dräger Flame 3000 is an imaging based explosion proof flame detector. This visual flame detection system uses digital image processing and advanced algorithms to process and interpret flame characteristics. This principle offers an extended field of view and fewer false alarms.



Flame Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Flame 3000

Dräger Flame 3000			
Dräger Flame 3000 3/4" NPT Aluminium		1 / box	4209464
Dräger Flame 3000 1/2" NPT Aluminium		1 / box	4209476
Dräger Flame 3000 3/4" NPT Stainless Steel		1 / box	4209477
Dräger Flame 3000 1/2" NPT Stainless Steel		1 / box	4209474
Dräger FS-5000		1 / box	4209307

Technical Data

Detector Characteristics		
Type	Explosion proof visual flame detector	
Spectral range	Near Infrared	
Field of view	Horizontal 120°, vertical 80°	
Response Time	4 seconds (typical), configurable up to 30 seconds	
Detection range (Pan fire 0,1 m ² /1 ft ²)	Methane	26 m (85 ft)*
	Ethanol	30 m (100 ft)
	n-heptane/petrol	60 m (200 ft)
	JP4	90 m (300 ft)**
	Diesel	50 m (165 ft)
	Ethylene glycol	20 m (65 ft)
	Crude oil	50 m (165 ft)***

* Plume fire 0.9 m (3 ft), ** Pan fire 0.4 m² (4 ft²), *** Pan fire 0.25 m² (2.7 ft²)

Ambient Conditions	
Temperature	60 to +85 °C (76 to +185 °F)
Pressure	915 to 1,055 hPa
Humidity	0 to 95 % RH, non-condensing

Flame Detectors

Technical Data

Electrical Data		
Relay	Alarm and fault	
Signal Output	0 to 20 mA	
	Fault	0 mA
	Optical Fault	2 mA
	Operating mode	4 mA
	Alarm	18 mA
Supply Voltage	24 VDC nominal (18 bis 32 VDC)	
Power Input	2.8 W (typical)	
Housing		
Material	Aluminium or Stainless Steel	
Cable Gland	M20, M25, ½“NPT or ¾“NPT	
Weight	2,5 kg (5,5 lbs) Aluminium or 6 kg (13,2 lbs) Stainless Steel	
Dimensions (D x L)	200 x 100 mm (7.9 x 3.9 inch)	
Protecting Class	IP66, NEMA 4X	
Approvals		
ATEX	II 2 G Ex d IIC T4	
IECEX	Ex d IIC T4	
FM/CFM	Class 1 Division 1 Groups B, C and D T4 Class 1 Zone 1 AEx/Ex d IIC T4	
Declaration of Conformity of Performance	FM3260 (Radiant Energy Sensing Fire Detectors for Automatic Fire Alarm Signaling), FM3600, FM3615, FM3810, ANSI/NFPA 72	

Flame Detectors

Dräger Flame 5000 Flame Detection

In today's industrial workplaces, flame detection is essential for protecting both people and facilities. The Dräger Flame 5000 is an explosion-proof flame detector based on advanced color imaging technology. Each detector operates as a standalone unit and incorporates an integrated closed circuit television (CCTV) system, digital signal processing, and software algorithms to process live video images and interpret the characteristics of a flame.



Flame Detectors

Product	Description	Packaging unit/type	Order No.
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Dräger Flame 5000

Dräger Flame 5000			
Dräger FS-5000		1 / box	4209307
Dräger Flame 5000, 3/4 NPT, Relay, NTSC video mode, w. Hart, Aluminium		1 / box	4209310
Dräger Flame 5000, 3/4 NPT, 4-20mA, NTSC video mode, w. Hart, Aluminium		1 / box	4209350
Dräger Flame 5000, 3/4 NPT, Relay, NTSC video mode, w. Hart, Stainless Steel		1 / box	4209322
Dräger Flame 5000, 3/4 NPT, 4-20mA, NTSC video mode, w. Hart, Stainless Steel		1 / box	4209356

Technical Data

Type	Color imaging based visual flame detector	
Field of View	Horizontal 90°	
Sensitivity	0.1 m2 gasoline fire at 44 m, (1 sq. ft fire at 144 ft)	
Response Time	4 seconds, typical; configurable up to 30 seconds	
Signal Output	Analog	0 to 20 mA
	or 2 Relays for Fault & Alarm	Ratings 125 VAC, 0.5 A; 30 VDC, 2A (optional)
	Standard RS 485	
Supply Voltage	18 to 30 VDC, current consumption 6 watts (typical)	
Ambient Conditions	Temperature	-60 °C to +85 °C, -76 °F to +185 °F
	Pressure	915 to 1,055 hPa, 27.9 to 31.2 inch of Hg
	Humidity	0 to 99 %RH, non-condensing
Enclosure	IP 66, NEMA 4X	
Cable Entry	M20, M25 or 3/4" NPT	
Dimensions (L x D, approx)	200 x 100 mm, 7.9 x 3.9 inches	
Weight (approx)	2.5 kg, 5.5 lbs (2.8 kg, 6.2 lbs stainless steel)	
Approvals	ATEX	II 2 G EEx d IIC T4
	IECEX	Ex d IIC T4
	Class I, Division 1 Groups B, C and D	
	FM/CFM	Class I, Zone 1, AEx d IIC; T5



Area Monitoring

Dräger

Technology for Life

Area Monitoring

AREA MONITORING

Optical Gas ImagingDetection

Metcam

140

Ultrasonic Leak Detection

Polytron® 8900

144

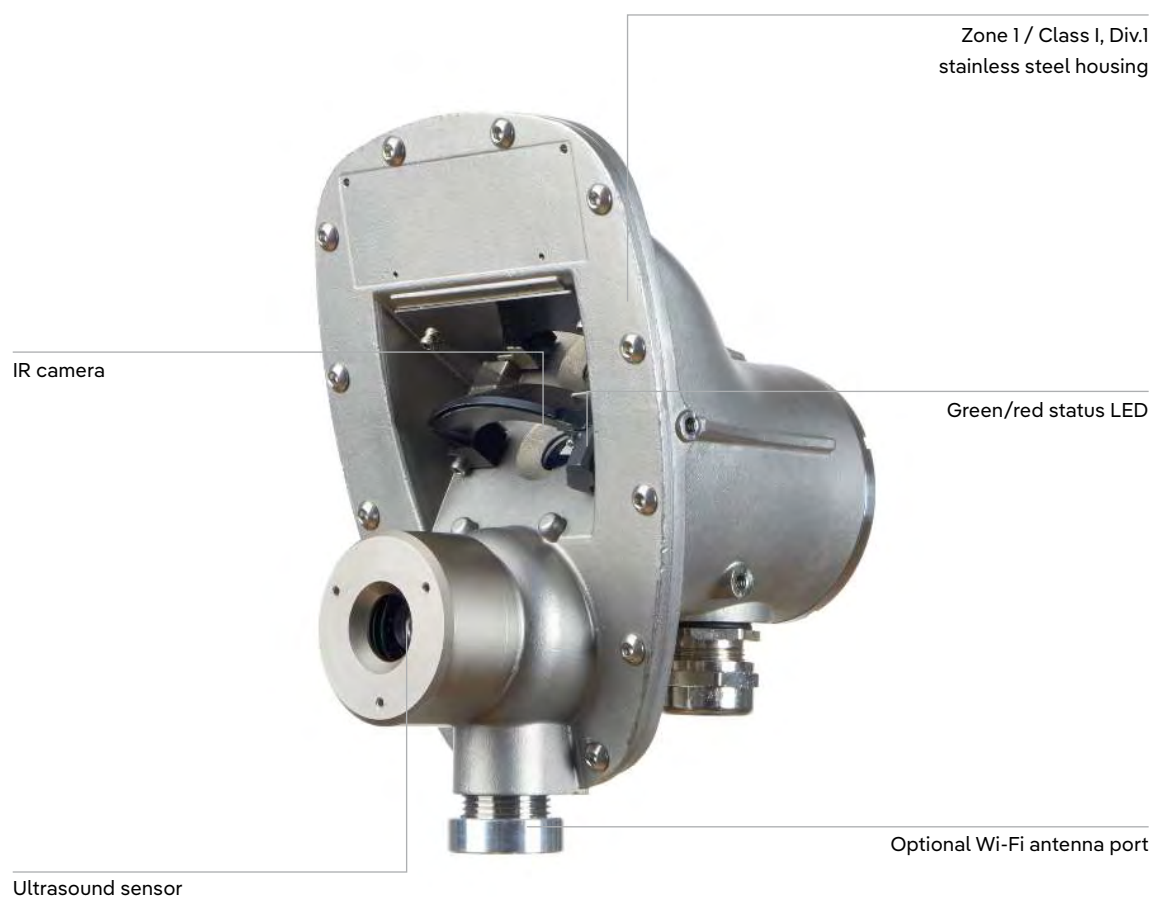
Optical Gas Imaging Detection

Area Monitoring

MetCam Gas Camera

Optical Area Monitoring

The MetCam is an explosion-proof gas camera that continuously monitors large areas for hazardous methane leaks and fugitive emissions. The device automatically quantifies the source and intensity of the leak using advanced algorithms and transmits alarms via analog 4–20mA/HART® or RS485 Modbus. Visualization is via Ethernet or Wi-Fi.



Area Monitoring

Product	Description	Packaging unit/type	Order No.
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MetCam Camera

MetCam Camera (3/4NPT) 37 03 416			3703416
MetCam Camera (3/4NPT, Temp) 37 03 418			3703418
MetCam Camera (3/4NPT, Temp, Wi-Fi) 37 03 420			3703420
Pan Tilt Mounting Set 37 03 421			3703421
Weather Shield 37 03 422			3703422
Functional Test Sheet			3703423

Technical Data

Camera characteristics	
Measuring gas	Methane
Type	Explosion proof / flameproof (Ex d) optical gas imaging camera with transmitter
Response Time	< 10 seconds
Range	10 to 50 m
Field of view	Horizontal 68°; vertical 23°
Lower detection threshold	> 60 g/h
Self-calibration	Every 3 to 5 minutes
	Interval depending on the change in ambient temperature
Communication/Protocol	Giga Ethernet
	Modbus half-duplex
	ONVIF Protocol – Profile S
	HART® Protocol
Electrical data	
User interface	Green/red status LED
	Webserver over Ethernet or Wi-Fi
Output signals	4–20 mA / 16 mA / 20 mA (stepped), HART®
RS 485	RS-485 Modbus compatible interface
LAN	Giga bit Ethernet – Optional Wi-Fi
Supply voltage	24 VDC (16–32 VDC)
Power consumption	Max. 22 W

Area Monitoring

Environmental conditions

Temperature range	Operation: -13 to +104 °F (-25 to +40 °C)
	Optional: -40 to +140 °F (-40 to +60 °C)

Housing

Material	Stainless steel 316
Protection class	IP66, NEMA 4X
Cable gland	1 M25 or 3/4" NPT
Weight	< 9.9 lb (< 4.5 kg)
Dimensions	6.1 x 9.3 x 7.2 in (156 x 236 x 183 mm)

Approvals

ATEX/ IECEx	Ex II 2G
	Ex db ia IIB+H2 T5 Gb
	Ex db ia mb IIB+H2 T5 Gb (MetCam Wifi)
	-40 °C ≤ Tamb ≤ 60 °C
US & Canada (QPS File LRI524)	Class I, Division 1, Groups B, C, D, T6
	Class I, Zone 1 AEx db ia IIB+H2 T5 Gb
	-40 °C ≤ Tamb ≤ 60 °C
	Class I, Division 1, Groups B,C,D T6 Ex db ia mb IIB+H2 T5 Gb (MetCam Wifi) Class I, Zone 1, AEx db ia mb IIB+H2 T5 Gb (MetCam Wifi)
Applicable Standards	CSA C22.2 No. 60079-0:2015, No. 60079-1: 2016, No. 60079-11: 2014, No. 60079-18: 2018 No. 30-1986 (R2016), No. 60529:16
	UL 60079-0:2013, UL 60079-1:2015, UL 60079-11:2013, UL 60079-18: 2015, UL 1203 5th Ed. (2015), IEC/ANSI 60529-2004

HART® is a registered trademark of the HART® Communication Foundation

Acoustic Gas Leak Detection

Area Monitoring

Dräger Polytron® 8900 UGLD Ultrasonic Gas Leak Detector

The Dräger Polytron® 8900 UGLD transmitter is an early warning area monitor for detecting high-pressure gas leaks in outdoor industrial process environments. Thanks to an ultrasonic acoustic sensor, it responds earlier than conventional gas detectors because it registers the sound of leaking gas instead of measuring the concentration of accumulated gas clouds. As gas escapes, leaks are immediately detected in the surrounding area, regardless of the wind direction.

Menu control Backlit display

Menu control

Backlit display

LED status display

Ultrasound sensor



Area Monitoring

Product	Description	Packaging unit/type	Order No.
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Dräger Polytron® 8900 UGLD

Polytron® 8900 UGLD d S 4-20/HART® Relay, Stainless Steel Ex d Housing with 4-20mA HART® output and 3 Relays	8328030
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Accessories

Magnetic Wand	4544101
Remote Sensing Head with wall mount kit	8328021
Connecting cable with plug for the Remote Sensing Head	5 m 8323305 15 m 8323315 30 m 8323330
UGLD Calibration and Bump Test Kit w/o Air Cylinder	8328042
Zero Air Gas Cylinder 103L for Calibration and Bump Test Kit	4510058
Pole Mount Kit	4544198
Polysoft Basic (one year license)	8328600
IR Connection Kit (requires PolySoft)	4544197

HART® is a registered trademark of the HART Communication Foundation.

Technical Data

Type	Explosion proof / flameproof enclosed transmitter ("d") or combined with increased safety ("d/e")	
Gases	Flammable and toxic gases such as hydrogen, methane, ethylene, propane, CO ₂ , nitrogen and hydrogen sulphide	
Measurement ranges	0-100% equivalent to 55-110 dB; typical alarm setting 10% UGLD signal above background	
Display	Back-lit graphic LCD display; 3 status LEDs (green/yellow/red)	
Sensor Type	PVCC coated piezoelectric microphone with built-in automatic self-test sound generator	
Sensor Performance	Response Time	< 3 sec.
	Minimum Pressure	> 2 bar (29 psi) Methane
	Coverage Radius	6.5ft -65 ft depending on gas type, leak rate and background noise
	Frequency Range	18 kHz - 80 kHz

Area Monitoring

Electrical data	Analogue signal output	Normal operation	4 to 20 mA
		Maintenance	Constant 3.4 mA or
			4 mA $\pm$ 1 mA
			1 Hz modulation; (adjustable)
	Digital signal output	Fault	< 1,2 mA
		HART®	
	Power supply	10 to 30 V DC, 3-wire	
Environmental conditions (See sensor data sheet)	Power consumption	w/ relay, remote	100 mA at 24 V
	Relay specification	Two alarm relays and one error relay, SPDT 5 A @ 230 VAC, 5 A @ 30 VDC	
	Temperature	-40 to 70°C (-40 to 158°F) with relays	
Housing	Pressure	700 to 1,300 mbar	
	Transmitter housing	Stainless steel SS316L	
	Sensor housing	Polyamide 6	
	Housing protection type	NEMA 4X & 7, IP65/66/67	
	Cable entry	Three ¾" NPT thread openings or M20 cable gland	
	Dimensions (H x W x D)	11.02" x 5.90" x 5.12" inches	
	Weight, approx.	11 lbs	
Approvals	UL	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T4	
	CSA*	Class I, Div 1, Groups A, B, C, D; Class I, Zone 1, Group IIC; T-Code T4	
	IECEx	Ex db [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70 °C Ex db eb [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40/ +70°C; "e" version;	
	ATEX	II 2G Ex db [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70 °C II 2G Ex db eb [ia] IIC T4 Gb, -40 ≤ Ta ≤ +40 / +70°C; "e" version	
	CE Markings	ATEX (Directive 2014/34/EU) Electromagnetic compatibility (Directive 2014/30/EU) Low voltage (Directive 2014/35/EU)	
	Marine approval*	DNV-GL	
	SIL 2	Certificate TÜV Süd	

* Pending



Compliance Systems

Dräger

Technology for Life

Compliance Systems

COMPLIANCE SYSTEMS

Refrigerant Transmitter	149
VarioGard® 2300 IR	152
VarioGard® 2320 IR CO ₂	154

Compliance Systems

Refrigerant Transmitter HVAC Gas Detection

Reliably detect refrigerant gas leaks with the infrared sensor based Dräger Refrigerant Transmitter. Safely monitor occupational exposure limits for specific refrigerants with detection levels as low as 10 ppm. Transmits a 4–20 mA signal to the control system of your choice. Also available in a serial bus version for integration with a Dräger VarioGard system.



Compliance Systems

Product	Description	Packaging unit/type	Order No.
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Refrigerant Transmitter – 4–20 mA Version

Refrigerant Transmitter SF6			AG01621
Refrigerant Transmitter R513a			3705324
Refrigerant Transmitter R507a			AG01620
Refrigerant Transmitter R449a			3705323
Refrigerant Transmitter R410a			AG01619
Refrigerant Transmitter R407c			AG01618
Refrigerant Transmitter R1234ze			AG01686
Refrigerant Transmitter R407a			AG01617
Refrigerant Transmitter R404a			AG01604
Refrigerant Transmitter R22			AG01606
Refrigerant Transmitter R134a			AG01603
Refrigerant Transmitter R125			AG01607
Refrigerant Transmitter R1234yf			AG01608
Refrigerant Transmitter R1234yf			AG01649
Refrigerant Transmitter R123			AG01605
Refrigerant Transmitter Broadband			3707787
Accessory			
Calibration adapter			AG01625

Technical Data

Measuring principle	Non-dispersive infrared, two wavelengths	
Gas supply	Diffusion, ambient air	
Dimensions (WxHxD)	6" x 3 3/16" x 3 9/16" / 151 x 80 x 90 mm / 151 x 90 x 80 mm (LxWxH)	
Warmup time	≤ 15 minutes	
Enclosure	Wall mounted with included brackets or through the enclosure. IP54 Polycarbonate UL94 V-0 Two M20 cable entry ports with 1 included cable gland	
Electrical data	Power Requirement	10 – 28 V DC 110 mA < 1.2 Watt
	Digital output	RS485 VarioGard Bus
	Wiring	3 conductor shielded, 14 – 18 AWG / 0.75 – 2.5 mm ²
	Analog output	0 – 20 mA Namur NE43

Compliance Systems

Technical Data

Environmental conditions	Operating temperature	-20 to +40 °C
	Storage temperature	-20 to +60 °C
	Humidity	0% to 95% relative humidity (noncondensing)
	Pressure	800 to 1,150 hPa
Measurement Range	0–1000 ppm or 0–2000 ppm	
Lower Detection Limit	10 ppm	
Minimum Alarm	50 ppm (dependent on gas and application)	
Performance Specialization	Linearity	+/- 30 ppm
	Repeatability	+/- 10 ppm to +/- 20 ppm depending on gas
	Long-term Zero Stability	+/- 30 ppm / 12 months
	Temperature Stability	+/- 3 ppm per deg °C
	Response Time	t90 approx. 60 sec.
Broadband Variant Detectable Gases	R134a	
	R11	
	R123	
	R1233zd	
	R1234yf	
	R1234ze	
	R125	
	R22	
	R23	
	R32	
	R404a	
	R407a	
	R407c	
	R407f	
	R410a	
	R448a	
	R449a	
	R452a	
	R455a	
	R507(a)	
	R513a	

Dräger VarioGard® 2300 IR

Detector for flammable gases and vapors

The Dräger VarioGard® 2300 IR is a transmitter with a 4-20 mA output signal and integrated infrared sensor. It detects flammable gases such as methane and LPG in non Ex areas, such as underground garages and laboratories.



Compliance Systems

Product	Description	Packaging unit/type	Order No.
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Dräger VarioGard® 2300 IR

Dräger VarioGard® 2300 IR EX	3721953
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Accessories

Magnetic Wand	4544101
Calibration adapter VarioGard® 3xx0/23x0	8322015
Cable inlet M20 x 1.5 (set of 10)	8315420
Software-Set VarioGard® (incl. USB Adapter)	8322016
Instruction for Use VarioGard® 23x0	9033492

Technical Data

Type	Transmitter for the measurement of concentrations of gases in the ambient air	
Gases and measuring ranges	LPG	0 to 100 % LEL
	Digital output	0 to 100 % LEL
Display	3-colour LED (green, yellow, red): Operation, Maintenance, Alarm	
Input	2 function buttons	
Alarm output	Horn and red LED	
Alarms	8 adjustable alarm thresholds	
Electrical Data	Wiring	3-wire
	Communication	4 to 20 mA
	Supply voltage	16 to 30
Housing	Material	Plastic ABS light grey RAL 7035
	Protection Class	IP65
	Dimensions	124mm x 94mm x 63mm (W x H x D)
	Weight	400 g
	Cable inlet	M20 x 1,5; 6 to 12 mm
Ambient Conditions	Temperature	-20 °C to +50 °C / -4 °F to +122 °F
	Humidity	10 to 95 % RH, non-condensing
	Pressure	700 to 1,300 hPa / 23.6 to 32.5 inch Hg

Compliance Systems

Dräger VarioGard® 2320 IR Detector for carbon dioxide

The Dräger VarioGard® 2300 IR is a transmitter with a 4-20 mA output signal and integrated infrared sensor. It detects carbon dioxide in non Ex areas, such as breweries and wineries.



Compliance Systems

Product	Description	Packaging unit/type	Order No.
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Dräger VarioGard® 2320 IR

Dräger VarioGard® 2320 IR CO ₂	3721955
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Accessories

Magnetic Wand	4544101
Calibration adapter VarioGard® 3xx0/23x0	8322015
Cable inlet M20 x 1.5 (set of 10)	8315420
Software-Set VarioGard® (incl. USB Adapter)	8322016
Instruction for Use VarioGard® 23x0	9033492

Technical Data

Type	Transmitter for the measurement of concentrations of CO ₂ in the ambient air	
Gases and measuring ranges	CO ₂	0 to 5 Vol.-%
Display	3-colour LED (green, yellow, red): Operation, Maintenance, Alarm	
Input	2 function buttons	
Alarm output	Horn and red LED	
Alarms	8 adjustable alarm thresholds	
Electrical Data	Wiring	3-wire
	Communication	4 to 20 mA
	Supply voltage	16 to 30 VDC
Housing	Material	Plastic ABS light grey RAL 7035
	Protection Class	IP65
	Dimensions	124mm x 94mm x 63mm (W x H x D)
	Weight	400 g
	Cable inlet	M20 x 1,5; 6 to 12 mm

Terms and Conditions

1. Scope of Application, General

- 1.1 Any delivery of goods and provision of services (hereinafter collectively "Goods") by Dräger* to the Customer, with the exception of construction works shall be subject to these General Terms and Conditions ("GTC") set forth herein. These GTC form a constituent part of all offers, orders and agreements between Dräger and the Customer.
- 1.2 Deviating terms and conditions - unless agreed to in writing - do not apply. Dräger and the Customer may agree to terms and conditions deviating from these GTC, such terms shall then have priority over these GTC. These GTC apply even if Dräger provides the Goods with knowledge but without actual acceptance of deviating terms and conditions of the Customer.
- 1.3 Dräger provides construction works in accordance with the German Standard Building Contract Terms, Part B (Verdingungsordnung für Bauleistungen, Teil B - "VOB/B"). The VOB/B shall be supplemented in a subordinate manner by Sections 2.2, 3, 4, 6 and 11 to 13 of these GTC.
- 2.4 Dräger shall retain, without limitation, any and all ownership rights, copyrights and industrial property rights in drawings, technical documents and other data, information and documentation in material or immaterial form, including in electronic form; these may not be disclosed to third parties without written consent.
- 2.5 In case of resale of Goods the Customer is responsible to comply with all applicable export rules and regulations. The Customer shall defend and indemnify Dräger from all costs and claims based on the violation of export rules and regulations by the Customer."

2. Scope of Performance

- 2.1 Offers by Dräger shall always be non-binding. Orders shall be deemed accepted only if Dräger confirms same or carries out the order.
- 2.2 The offer by Dräger shall govern the scope of performance. Statements as to weight and measurements in brochures and offers are according to best knowledge but are not guaranteed properties (Beschaffenheitsgarantie). The right to reasonable performance and construction modifications is reserved. The functions of software shall be limited to the description in the performance specifications. To the extent reasonably acceptable to the Customer Dräger may use components that are as good as new or that have been rendered as good as new.
- 2.3 Technical norms serve as performance specification only, provided Dräger does not expressly provide a guarantee in the form of a full guarantee for compliance with such technical norm. Guarantees as to properties (Beschaffenheitsgarantie) or shelf life (Haltbarkeitsgarantie) must be in writing.



Tag		Process value	Status
1	intoxiChannel	0	OK
2	channel tag 2	0.00	OK
3	channel tag 3	0.0	OK
4	PRG7000 channel	0	OK

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