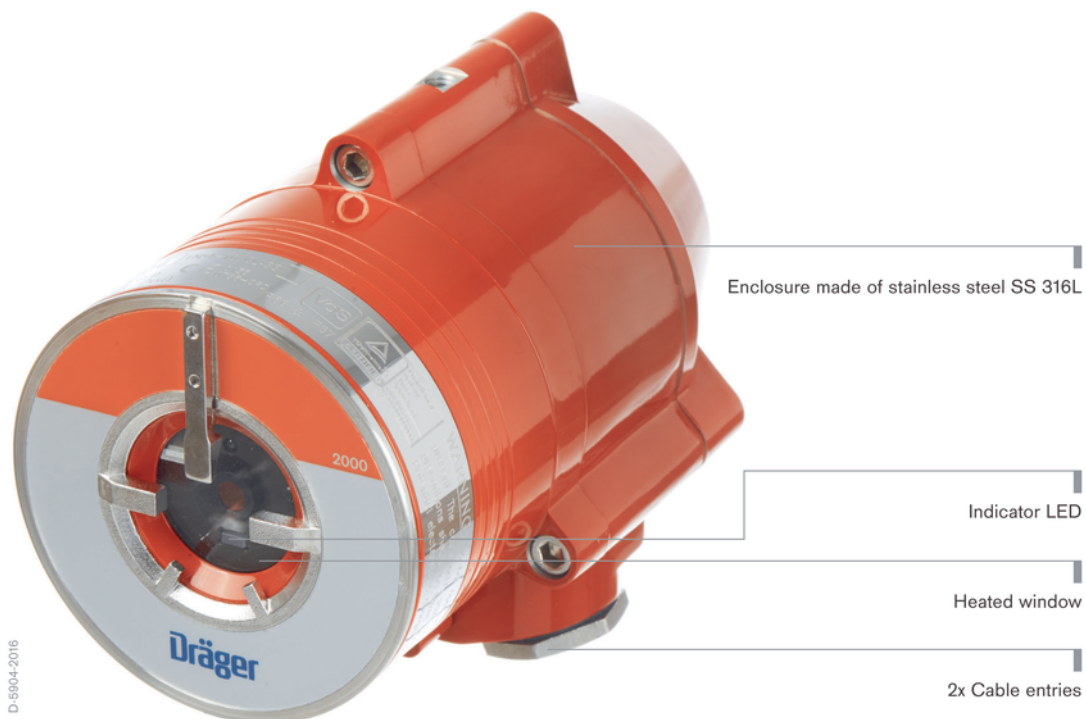# Dräger Flame 2000
Flame Detection

Working in areas with combustible gases, vapors, or materials requires fire/
flame detection as a life-saving necessity. The best solutions must combine
state-of-the-art technology with rugged durability and be ready to reliably
work in any situation. Flame 2000 uses an advanced infrared (IR) and optical
sensor to provide maximum sensitivity to carbon dioxide spectral bands.

Enclosure made of stainless steel SS 316L

Indicator LED

Heated window

2x Cable entries

D-5904-2016

Benefits

The Cost-Effective Multi-Talent

The Dräger Flame 2000 uses advanced flame analysis tools to quickly detect hydrocarbon-based fuel and gas fires. With the capability to provide early warning of flaming fires at 4.5 µm, and its immunity to false alarms caused by other IR sources, the Flame 2000 is the right choice for those who want more performance for less.

Tough and Intelligent

The Flame 2000 is one of the most weather resistant single IR flame detectors currently available on the market. It comes with new features such as a heated window to eliminate icing and condensation, HART® capabilities for digital, lower power requirements, and a compact, lighter design.

Reliability

Functional safety is a concept applicable across all industry sectors. It is fundamental to enabling complex technology and provides assurance that the safety-related systems will offer necessary risk reduction. The Flame 2000 is highly reliable and complies with the IEC 61508 Safety Integrity Requirements of SIL2.

Automatic and manual optics checks (BIT)

Automatic checks of the detector electronics and optics helps ensure that no fault goes undetected. Additionally, the test can be triggered manually at any time.

Easily visible status LED

A tri-colored LED on the front of the detector provides a simple status indication to personnel in close proximity. Green indicates normal operation, yellow indicates a fault, and red indicates the presence of radiation from a fire.

Simple installation and commissioning

Installation is simple! The detector is easily installed with a stainless steel tilt mount, enabling the detector to be rotated up to 60° in all directions. This offers flexibility in positioning the detector in relation to potential fire sources.

Further benefits and features:

– Sensitivity selection—to ensure no zone crossover detection
– Automatic and Manual Built-In-Test (BIT)—to ensure continued reliable operation
– Heated window—for operation in harsh weather conditions (snow, ice, condensation)
– Multiple output options for maximum flexibility and compatibility
– 3 Relays for Alarm, Fault and Auxiliary

Benefits

– 0–20 mA (stepped)
– HART® Protocol for maintenance and asset management
– RS-485, Modbus compatible
– Approved to Safety Integrity Level 2 (SIL2—TÜV)
– Ex approvals for worldwide application: ATEX, IECEx, FM/FMC, CSA
– 3rd party performance tested: EN54-10 (VdS), FM3260

System Components

D-27777-2009

Dräger REGARD® 3900

The Dräger REGARD® 3900 is a standalone control system for the detection of toxic gases, oxygen levels, and Ex hazards. The control system is fully configurable between 1 and 16 channels, depending upon the type and quantity of input/output boards installed.

Accessories

D-51319-2016

Flame Simulator

The Flame Simulator emits radiation in a unique sequential pattern corresponding to and recognizable by the detector as fire. This allows the detectors to be tested under simulated fire conditions without the associated risks of an open flame.

D-5921-2016

Weather Cover

The Weather Cover protects the detector from different weather conditions, such as snow or rain.

D-5925-2016

Laser Pointer

Does the detector cover the area that needs protection? Is it located correctly? Does the detector's cone of vision cover the most dangerous spot? This accessory enables the installer to optimise detector location and its actual detection area coverage.

D-5926-2016

Air Shield

The Air Shield allows the installation of the Dräger Flame 2000 series detectors under tough environmental conditions where they may be exposed to oil vapors, sand, dust and other particulate matter.

Services

D-19072-2016

Dräger Service

When your operation's safety equipment is backed by over 125 years of experience and supported by the same team that engineered it, you can rely on service and rental solutions that are tailored to meet your unique needs. With Dräger's safety solutions, you get complete peace of mind, budget security, and full-service support that you can count on every step of the way. That's the Dräger Service Advantage.

Related Products

D-5903-2016

Dräger Flame 2100

Working in areas with combustible gases, vapors, or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. The Drager Flame 2100 is a single spectrum optical detector using an ultra-violet sensor to detect flames, while eliminating interference from solar-radiation and other non-fire UV sources.

D-5905-2016

Dräger Flame 2350

Working in areas with combustible gases, vapors, or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. The Drager Flame 2350 is a dual spectrum optical detector, using a combination of ultra-violet and infrared sensors to detect fires at a high speed response time of 200 milliseconds.

Related Products

D-5902-2016

Dräger Flame 2370

Working in areas with combustible gases, vapors, or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. The Drager Flame 2370 is a dual spectrum optical detector, using a combination of ultra-violet and infrared sensors to detect fires at a high speed response time of 20 milliseconds.

D-5900-2016

Dräger Flame 2500

Working in areas with combustible gases, vapours or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. The Drager Flame 2500 features three infrared sensors to identify fire events with exceptional sensitivity and extreme immunity to false alarms.

D-5901-2016

Dräger Flame 2700

Working in areas with combustible gases, vapor, or materials requires fire/flame detection as a life-saving necessity. The best solutions must combine state-of-the-art technology with rugged durability and be ready to reliably work in any situation. The Drager Flame 2700 multi-IR incorporates several detection algorithms to simultaneously detect both CO_2 & H_2O peaks, and reduce false alarms.

Technical Data

Type	Explosion-proof IR flame detector for hydrocarbon- and hydrogen-based fires	
Spectral Response	IR = 4,4–4,6 µm	
Measuring Performance	Field of view	Horizontal 90°; Vertical 90°
	Response Time	Typically 5 seconds
	Sensitivity Ranges	2 Sensitive ranges for 1 ft^2 (0.1 m^2) n-Heptane pan fire from 15 ft (5 m) to 50 ft (15 m)
Detection Range (at highest Sensitivity Setting for 1 ft^2 (0.1 m^2) pan fire)	Fuel	ft / m
	n-Heptane / Gasoline	50 / 15
	Diesel Fuel / JP5 / Kerosene	37 / 11
	Ethanol 95 %	25 / 7.5
	Methanol	25 / 7.5
	IPA (Isopropyl Alcohol)	25 / 7.5
	Methane*	29.5 / 9
	LPG*	43 / 13
	Polypropylene Pellets	37 / 11
	Office Paper	20 / 6

* 30" (0.75 m) high, 10" (0.25 m) width plume fire

Electrical Data

Output Signals	0 – 20 mA (stepped), HART®
Fault Signal	0 + 1 mA
BIT Fault Signal	2 mA ±10 %
Normal Signal	4 mA ±10 %
Warning Signal	16 mA ±5 %
Alarm Signal	20 mA ±5 %
Relays	Alarm, Fault and Auxiliary SPST volt-free contacts rated 2 A at 30 VDC
RS485	Modbus compatible communication link
Power supply	24 VDC nominal (18 – 32 VDC)
Power Consumption	Standby: Max. 90 mA (110 mA with heated window) Alarm: Max. 130 mA (160 mA with heated window)

Ambient Conditions

Temperature	-55 to +75 °C / -67 to +167 °F (operating) -55 to +85 °C / -67 to +185 °F (option and storage)
Humidity	Up to 95 % non-condensing (withstands up to 100 % RH for short periods)

Enclosure

Material	Stainless steel SS 316
Material Option	Heavy duty copper free aluminum, red epoxy enamel finish
Connecting Thread	2 × 3/4" – 14NPT or 2 × M25 × 1.5 mm
Weight	Detector SS 316L 2.8 kg / aluminum 1.3 kg Tilt mount 1.0 kg
Dimensions Detector	101.6 × 117 × 157 mm
Ingress Protection	IP66 and IP67, NEMA 250 6P

Approvals

ATEX and IECEx	Ex II 2 G D		
	Ex d e IIC T5 Gb	Ex d e IIC T4 Gb	Ex d e mb IIC T4 Gb
	Ex tb IIIC T96°C Db	Ex tb IIIC T106°C Db	Ex tb IIIC T98°C Db
	(-55 °C ≤ Ta ≤ +75 °C)	(-55 °C ≤ Ta ≤ +85 °C)	(Ta = -55 °C to +75 °C)

Technical Data

FM/FMC/CSA	Class I Div. 1, Groups B, C & D
	Class II/III Div. 1, Groups E, F & G
Safety Integrity Level	SIL2 certified by TÜV (EN61508)
Performance Approval	EN54-10 (VdS)
	FM3260
CE marking	EMI/RFI protected to EN61326-3 and EN61000-6-3

Ordering Information

Dräger Flame 2000 (R-111SC)	68 13 919
Dräger Flame 2000 (R-211SC)	68 13 920
Dräger Flame 2000 (R-311SC)	68 13 921
Dräger Flame 2000 (R-211AC)	68 13 941
Dräger Flame 2000 (R-311AC)	68 13 942
Dräger Flame 2000 (R-112SF)	68 13 960
Dräger Flame 2000 (R-212SF)	68 13 961
Dräger Flame 2000 (R-312SF)	68 13 962

Accessories	
Flame Simulator FS-1300 (IR)	68 13 975
Dräger Flame 2xx0 Air Shield	68 13 977
Dräger Flame 2xx0 Duct Mount	68 13 978
Tilt Mount Flame Detector	68 13 979
Weather cover Flame Detector (SS)	68 13 189
Weather cover Flame Detector (ABS)	68 13 190
Dräger Flame 2xx0 Laser Pointer	68 13 890
Dräger Flame Pole Mount 3"	68 13 323
Dräger Flame Pole Mount 2"	68 13 322
Dräger Flame USB RS-485 Kit	68 13 994
Battery Pack for Flame Simulator FS1x00	68 13 889
HART® is a registered trademark of the HART® Communication Foundation	

Notes

Notes

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