PROTECTION SYSTEMS FROM firefly

FIREFLY MGD

Advanced early fire detection solution for demanding applications





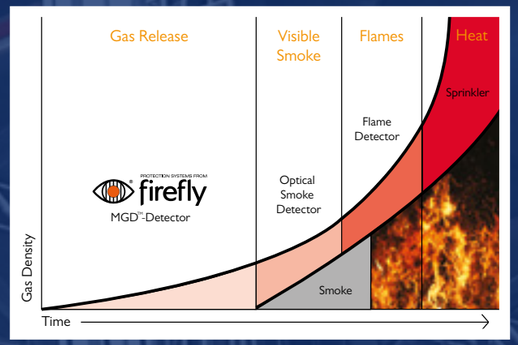
WHY USE EARLY FIRE DETECTION

Numerous fires could have been avoided by early fire detection. These fires have cost human lives and injuries as well as millions in damages and lost production for the affected industries.

With our vast experience in providing preventive fire protection to the process industries since 1973, Firefly offers FM-approved Multiple Gas Detection (MGD). It is a solution for early fire detection in tough industrial environments such as silos, warehouses, port facilities, industrial production areas, etc.

MGD TECHNOLOGY

MGD technology, originally developed for aerospace, is based on the detection of fire related gases. The Firefly MGD-detector can be described as an “electronic nose”. Through intelligent analysis of several different gas combinations, the detector can identify a fire at a very early stage.



MAIN FEATURES

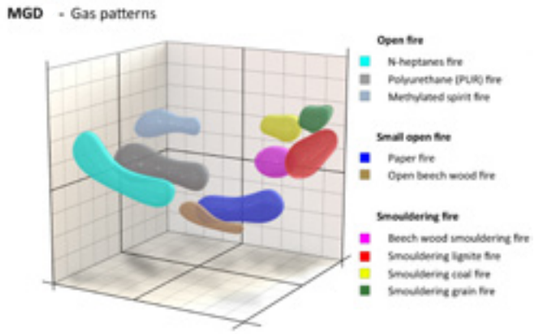
- Fire detection at an early stage, using highly advanced MGD technology
- Designed for tough environments, with robust design withstanding dust, humidity, vibration, etc.
- Low maintenance required, with calibration interval >10 years

> The Firefly MGD-detector shows that it is possible to identify an ongoing pyrolysis process in an earlier stage compared to other detection methods. The MGD-detector had the fastest response and indicated a “pre-alarm” within 1,5-3 hours. *

* EXCERPT FROM SCIENTIFIC REPORT
“Fire and fire extinguishment in silos”
by Henry Persson et al.
From the SP Swedish National Testing and Research Institute, RISE

MULTIPLE ALARM FUNCTIONALITY

The Firefly MGD can be provided with multiple alarm functionality and tailored to each customer's specific needs. A pre-alarm indication from a Firefly MGD detector offers the earliest warning signal of an incipient fire.



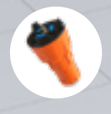


"In 2011, we commissioned Georgia Biomass LLC's Waycross, GA facility, the world's largest wood pellet plant with an annual production of 750,000 metric tons. Our customer is committed to ensuring that their people and facility are as safe as possible and that their production is not interrupted by false alarms. Therefore, during the design of the plant, we chose Firefly's advanced preventive fire protection system including the Firefly MGD detection technology to safeguard our customer's people and assets. Firefly provided us with an integrated high-tech system, unequalled in the market. Firefly's engineers provided first-class service and their know-how and experience in the bioenergy industry was extremely valuable to us.

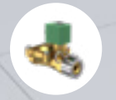
MICHAEL ADKINS
Director of Process and Controls Development, BMC Consultancy Inc. (wholly owned subsidiary of RWE Innogy)



FIREFLY MGD DETECTOR
The MGD detector contains extremely sensitive sensors that react fast on the gases released in a very early stage of a fire, even before the presence of visible smoke or flames.



PATENTED TRUE IR DETECTORS
Millisecond detection of hot particles, sparks and flames. Firefly's Spark Detectors are FM approved and insensitive to ambient light.



FULL-CONE WATER SPRAY EXTINGUISHING
Powerful extinguishing with a unique nozzle design and placement aimed to penetrate and cover the entire material flow. Activated within milliseconds after detection.



A UNIFIED CONTROL SYSTEM
Enabling a good overview of all protected zones. Operators will control the system via IntuVision,™ an intuitive user interface with a colour touch screen, which comes as a standard in every Firefly System.

ABOUT FIREFLY

Firefly is a Swedish company that provides industrial fire prevention and protection systems to the process industry worldwide. Since 1973, Firefly has specialized in creating customized system solutions of the highest technical standards and quality. Based on customer needs and research, Firefly has developed and patented products and solutions, creating a unique portfolio of innovative products and system solutions to increase the level of safety and production output.

The Firefly quality management system is certified according to ISO 9001 and EN ISO/IEC 80079-34. Firefly's products hold national and international third-party certifications through FM, VdS, CSA, DNV, LCIE Bureau Veritas, Delta, and RISE among others.

For more information on our certifications and approvals, please visit: www.firefly.se/about-us/certifications-approvals/

Please contact us if you have questions about fire and explosion risks within your process, our fire preventive team will be happy to share their knowledge and experience.

AS A FIREFLY CUSTOMER YOU RECEIVE

- A partnership with our fire prevention teams around the world.
- Digital progression based on robust safety systems.
- Technical innovation in fire prevention and protection.
- Fire prevention and protection through certified technology.

WE HAVE FIREFLY USERS FROM MULTIPLE INDUSTRIES ALL OVER THE WORLD

Firefly users in over 90 countries



■ Firefly users

Firefly's products are available with the following certifications and approvals:

For information on the certifications and approvals each product holds please visit:
www.firefly.se/en/company/approvals



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