Ultra-High-Speed Optical Flame Detection and Releasing System Solutions for the Munitions Industry

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@ 2018 Detector Electronics Corporation
AGENDA

• Det-Tronics introduction
• Optical Flame Detection technologies
• Meeting codes and standards
• Performance-based design evaluation
• Det-Tronics ultra-high-speed system solution
• Summary
WHO IS DET-TRONICS?

45 years of engineering innovation and expertise

World-class manufacturer of industrial flame & gas safety systems

In-house system design, development, manufacturing, and testing capabilities

ISO9001 Manufacturing Process

Dedicated test facilities

Global approvals group
SEGMENTS SERVED

Oil & Gas
LNG
Aircraft hangars
Turbines
Automotive
Munitions
Aerospace
Renewable
Buildings
Food processing

Approvals

CSA Group
Segurança
IEC
Ex
FM Approved
VD S
United States Coast Guard
Det-Tronics
OPTICAL FLAME DETECTION

Detects the radiant energy emitted by flame

Ultraviolet

Infrared

Note: 1 micrometer = 1000 nanometers = 10,000 Angstroms
ULTRAVIOLET (UV) FLAME DETECTION

1850 - 2450 Angstroms

Solar-Blind

Outside of visible range
INFRARED (IR) FLAME DETECTION

42,000 – 48,000 Angstroms
Solar-blind
Outside of visible range
UV IR FLAME DETECTION

Combines UV and IR technology

Solar-blind

Outside of visible range
UV – BENEFITS AND LIMITATIONS

- Less affected by elements
- Detects most fire types
- Speed of response
- Unaffected by hot objects

- Welding & Lighting
- Vapors & Oil film
- Nuclear radiation / X-rays
- Smoke
**IR– BENEFITS AND LIMITATIONS**

- **Less affected by smoke**
- **Speed of response**
- **Unaffected by arc welding / lightning / x-rays / nuclear radiation**
- **Unaffected by vapors**

**IR Detector**

- **Water & Ice**
- **Modulated hot objects**
- **Modulated high intensity lamps**
- **May not detect all fire types**
CODES AND STANDARDS

Provide knowledge and information to minimize risk and effects of fire

Adherence is required

Performance-based design
PERFORMANCE BASED DESIGN
ULTRA-HIGH-SPEED SOLUTION

X2200 UV, X9800 IR, or X5200 UVIR flame detector

High Speed Deluge Module (HSDM)

Ultra-high-speed response capable <20mS in ideal conditions

Eagle Quantum Premier® System allows users to comply with NFPA 15, NFPA 72, UFC-3-600-01
SUMMARY

Det-Tronics: The industry standard in flame detection & releasing for munitions applications for 40+ years

Continuing support for the munitions industry --- new product release mid-2019

Ultra-high-speed response capable <20mS in ideal conditions

Eagle Quantum Premier® System allows users to comply with NFPA 15, NFPA 72, UFC-3-600-01