

## Ultra-High-Speed Flame Detection and Releasing Systems Technical Summary

This bulletin provides a summary of the technical specifications and capacities of the four different Det-Tronics ultra-high-speed flame detection and releasing system (Ultra FDRS) models.

The manufacturing of energetic materials and other specialized applications may require a flame detection and releasing system that is capable of a high-speed (not more than 500 milliseconds) or ultra-high-speed (not more than 100 milliseconds) response.

Det-Tronics offers several pre-designed, listed detection and releasing systems for ultra-high-speed flame detection and releasing (Ultra FDRS) applications.

Three standardized system models are available to meet the needs of the small, medium and large ultra-high-speed system users. These models utilize the listed Eagle Quantum Premier® (EQP) Fire and Gas detection and releasing system.

Each model includes an appropriately sized cabinet housing an EQP Controller, one or more high-speed deluge modules (HSDM), one input/output module (EDIO), physical disconnect switches and field wiring termination terminals.

### Features and Technical Specifications

#### Model 2400

- Red painted (RAL 3020) steel enclosure, locking key handle door, fixed window, mounting feet, NEMA 4
- 24"(H) x 20"(W) x 8"(D) | 610mm x 508mm x 203mm
- One (1) EQP Safety System Controller
- Up to six (6) inputs from flame detectors (Class B)
- Up to six (6) 24Vdc ultra-high-speed outputs (Class B)
- Up to seven (7) non-high speed inputs or outputs
- Lockable physical disconnect switches
- Interposing terminals to accommodate field wiring
- FM/CSA/IECEX approved for indoor, non-hazardous areas
- Certified SIL 2 capable
- Compliance with NFPA 72® and NFPA 15 (Chapter 12)

#### Model 3600

- Red painted (RAL 3020) steel enclosure, locking key handle door, fixed window, mounting feet, NEMA 4
- 36"(H) x 24"(W) x 8"(D) | 914mm x 610mm x 203mm
- One (1) EQP Safety System Controller
- Up to eighteen (18) inputs from flame detectors (Class B)
- Up to eighteen (18) 24VDC ultra-high-speed outputs (Class B)
- Up to seven (7) non-high speed inputs or outputs
- Lockable physical disconnect switches
- Interposing terminals to accommodate field wiring
- FM/CSA/IECEX approved for indoor, non-hazardous areas
- Certified SIL 2 capable
- Compliance with NFPA 72® and NFPA 15 (Chapter 12)

#### Model 4800

- Red painted (RAL 3020) steel enclosure, locking key handle door, fixed window, mounting feet, NEMA 4
- 48"(H) x 24"(W) x 10"(D) | 1219mm x 610mm x 254mm
- One (1) EQP Safety System Controller
- Up to thirty (30) inputs from flame detectors (Class B)
- Up to thirty (30) 24VDC ultra-high-speed outputs (Class B)
- Up to seven (7) non-high speed inputs or outputs
- Lockable physical disconnect switches
- Interposing terminals to accommodate field wiring
- FM/CSA/IECEX approved for indoor, non-hazardous areas
- Certified SIL 2 capable
- Compliance with NFPA 72® and NFPA 15 (Chapter 12)

### Remote Input/Output (RIO) Model

This system component allows for the installation of any of the 2400, 3600, or 4800 models in one area while the RIO is installed in a different area located physically closer to individual work areas. The RIO is ordered as needed in a quantity sized to meet the needs of the particular application.



### Features and Technical Specifications

The RIO model is ordered as needed in a quantity that is sized to the needs of the particular application.

- Red painted (RAL 3020) steel enclosure, locking key handle door, mounting feet, NEMA 4
- 36”(H) x 24”(W) x 8”(D) | 914mm x 610mm x 203mm
- Up to eighteen (18) inputs from flame detectors (Class B)
- Up to eighteen (18) 24VDC ultra-high-speed outputs (Class B)
- Up to seven (7) non-high speed inputs or outputs
- Lockable physical disconnect switches
- Interposing terminals to accommodate field wiring
- FM/CSA/IECEx approved for indoor, non-hazardous areas
- Certified SIL 2 capable
- Compliance with NFPA 72® and NFPA 15 (Chapter 12)



**Figure 1:** Example of the timeline from detection of an ignition source to releasing the mitigation system.

### Standard Capacities

The following table summarizes the specific capacities and dimensions of the different standard Ultra FDRS models. Other non-standard configurations are available. These non-standard options may incur higher costs and longer lead times.

**Table 1:** Ultra-High-Speed Flame Detection and Releasing System (Ultra FDRS) Models and Capacities

Model	Enclosure Specifications				System Capacities (Inputs/Outputs)			Hardware Capacities (Quantity)			
	Size (H x W x D)	Window	Rating	Finish	Flame Detector Inputs (Class B)	Ultra-High-Speed Outputs (Class B)	Non-High-Speed I/O	EQP Controller	HSDM Modules	EDIO Modules	Physical Disconnect Switches
Ultra FDRS 2400	24" x 20" x 8" 610mm x 508mm x 203mm	Yes	NEMA 4	Red Painted (RAL 3020)	6	6	7	1	1	1	2
Ultra FDRS 3600	36" x 24" x 8" 914mm x 610mm x 203mm	Yes			18	18	7	1	3	1	6
Ultra FDRS 4800	48" x 24" x 10" 1219mm x 610mm x 254mm	Yes			30	30	7	1	5	1	10
Ultra FDRS RIO	36" x 24" x 8" 914mm x 610mm x 203mm	No			18	18	7	0	3	1	6

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