**Product**

UniVario FMX5000 UV Flame Detector

**PART 1 - GENERAL**

1.1 SCOPE

This document provides specification details for UniVario FMX5000 UV Flame Detector. All items under this specification shall comply with all applicable code requirements and manufacturer’s recommendations.

1.2 APPROVALS

 The Flame Detector shall be tested, approved and/or listed by:

1. IEC/ ATEX/ AEx (NEC 505/506) (Zone 2 Gas 22)
2. NEC 500 Class I, II, III, Division 2, Groups A, B, C, D
3. FM Approvals, comply to FM3260, FM3600, FM3610
4. CSFM (California State Fire Marshall)
5. CE Marking, VdS
6. CCC (China Certification Corporation)
7. VNIIPO (All-Russian Research Institute for Fire Protection)

1.3 CODE, STANDARDS, AND REGULATION

The Flame Detector shall be installed per manufacturer’s instructions, including mounting, programming, and power requirements, and shall comply with one or more of the following codes and standards:

* 1. National Fire Protection Association (NFPA)
	2. National Electrical Code (NEC)
	3. FM Global
	4. Relevant industry code of practices

1.4 Typical Applications

The flame detector shall detect and respond to open flames that can occur during combustion of carbonaceous materials, such as hydrocarbons, oil products, plastics or wood. It shall be based on light of sight detection of radiation emitted in UV spectral bands by flames. The unit shall be designed to detect the absorption of light at specific wavelengths, allowing it to discriminate between flames and false alarm sources.

1.5 SUBMITTALS

* + 1. System shall be complete in all ways and shall include all engineering and electrical installation, all detection and control equipment, auxiliary devices and controls, alarm interfaces, functional testing, training, and all other operations necessary for a functional, UL Listed, and FM Approved system.
		2. Prepare product data and site drawings indicating the system layout, including location of flame detector unit, coverage per detector, power requirements, and detection sensitivity per detector.
		3. Show method and fixtures of each detector to the building (wall or ceiling) structure.
		4. System commissioning data shall be supplied as recommended per manufacturer’s instructions within 30 days of installation.
		5. As-Built Drawings:
			1. Upon completion of the installation, the Contractor shall, where applicable, revise flame detector design files, calculations, manuals, and operating instructions to agree with on-site conditions.
			2. Submit a copy of the manufacturer’s installation, operation, and maintenance manuals.
			3. Final construction drawings shall be stamped/sealed by a licensed Professional Engineer in the state where the work is being constructed, or a NICET level III or higher certified fire alarm technician.

1.6 QUALITY ASSURANCE

1. Manufacturer

The manufacturer shall have a minimum of 30 years of production experience in the manufacturing and design of flame detector devices and related suppression systems.

1. Detector Requirements
2. The flame detector is ultraviolet spectrum (UV) type. The system software shall provide pipe design, system configuration, and system monitoring in a single software program.
3. The detector will be continuously tested for electronics failure. It shall automatically apply a ultraviolet test signal to self-test the lens cleanliness and the sensor.
4. The unit shall use a portable, external means of device to perform full, functional end to end testing of the detector and the fire protection system.
5. The flame detector shall provide various level of detection sensitivity
6. Installer

The equipment installer shall be authorized and trained by the manufacturer and shall have the ability to design a system based on code requirements. The installer shall be capable of providing calculations, design, and testing documents upon request.

**PART 2 - PRODUCT**

2.1 MANUFACTURER

 Approved flame detector manufacturer:

Viking Group, Inc.

Address:

5150 Beltway Dr. SE
Caledonia, Michigan 49316

 Manufacturer Approved Units: UniVario FMX5000 UV Flame Detector

2.2 FLAME DETECTOR (Ultraviolet Type UV)

The flame detector shall allow for various sensitivity classes per EN54-10 and/or specific coverage/distance/range to defined flame fuel types and size

The Flame Detector shall provide up to 2 form C, programmable, latching or non-latching relays or the ability to connect directly to the FACP via the SLC. Events shall include alarm conditions, detector status, and faults. The date and time of each event shall be recorded.

2.3 DESIGN PARAMETERS

The Flame Detector includes following key design attributes:

1. Detector spectral response shall be between 185 nm to 260 nm.
2. Detector lens shall sapphire glass to be resistant against mechanical and thermal stress.
3. Detector shall be able to detect a 2¾ft. x 2¾ft. n-heptane fire up to 166 ft. (50 m) from the source.
4. The field of view shall be horizontal 90° and vertical 90°.
5. Detector shall have a dip-switch option for an adjustable sensitivity
6. The response time shall be milliseconds and alarm initiation within 1s to 30s depending on flame intensity.
7. Detector shall have an event history and data logging memory
8. Detector shall have the option of a service and diagnose tool
9. Detector shall have the option to connect an external service test and reset button
10. Detector shall provide a service reed-contact test switch
11. Detector shall support an external indicator through open collector output Imax 10 mA, Vmax 30 VDC
12. Detector shall have the option for a LCD to display alarm, status, and condition messages.
13. Detector shallhave the option to provide addressable SLC Apollo XP95 loop protocol output
14. End to end testing shall be performed with an external flamesimulator.

2.4 MECHANICAL SPECIFICATIONS

The flame detector shall have the following key mechanical attributes:

1. The unit enclosure shall be two separate parts a base and the senor head
2. Enclosure size for the units shall be:
3. Detector base: die cast Aluminium 8-pole terminal block, 2 conduit or cable entries
4. Detector with base (L x W X H): 3-5/8'' x 5-1/8'' x 5.-1/2'' (92 x 130 x 140 mm)
5. Weight for the units shall be:
Detector with base and bracket (die-cast Aluminium): 2.2 lbs. (0.991 kg)
6. Colour of the units shall be: RAL 3000
The enclosure material shall be die-cast aluminium with red epoxy enamel finish.
7. The unit shall provide two conduit entries 1/2” NPT or optional M16 or M20

2.5 ELECTRICAL SPECIFICATIONS

The flame detector shall have the following key electrical attributes:

1. The operating voltage shall be 7.6-30 VDC.
2. Power consumption for the detector shall be:
3. Detector (standby): Max. 2.6 mA
4. Detector (alarm): Max. 18 mA
5. Standard alarm outputs shall include one conventional alarm line or optional one (1) single pull double throw (SPDT) relay contact:
6. Standard trouble outputs shall include one (1) conventional alarm line or optional one (1) single pull double throw (SPDT) relay contact follows:
7. Relay shall be rated for 1 amperes @ 60 VDC
8. The system shall have the option for pulse air purging unit to remove dust form the detector lens.
9. Wire gauge shall range from 24 to 12 AWG (0.5-2.05 mm). Wire or conduit shall enter the detector from either the top or the bottom of the device. Pluggable terminals shall be used to wire the detector.

2.6 ENVIRONMENTAL SPECIFICATIONS

1. The detector shall be capable of operating in temperatures from -4 °F to 176 °F (-20 °C to +80°C). Operating humidity shall range from 0 to 95 % RH non-condensing.
2. The system must meet the performance requirementsof FM 3260 and EN 54-10. The system shall have a protecting rating against solids and liquids of NEMA 6/IP67