keep a SharpEye on your safety

Long-Range Flame Simulators

Using a Spectrex Flame Simulator is the only sure way to perform a full functionality test on your SharpEye Flame Detectors

SPECTREX INC.

Spectrex Long-Range Flame Simulators are specifically designed for testing the various SharpEye Optical Flame Detectors

To comply with local standards and jurisdiction, "end-to-end" loop testing of Fire Protection Alarm Systems, including detectors, should be performed periodically. Many Safety Authorities and Plant Managers of high value / high risk assets and facilities insist on quarterly "end-to-end" testing of their entire Fire Protection Systems using an external Flame Simulator.

Spectrex Flame Simulators emit electromagnetic radiation in a unique sequential pattern corresponding to and recognizable as fire by the specific SharpEye Flame Detector model. This allows the detector to be tested under real fire conditions without the associated risks of an open flame.

Spectrex Flame Simulators are **ATEX certified EExd for use in Zone 1 hazardous areas** and are powered by rechargeable NiCad batteries. When fully charged, the Fire Simulator will operate for at least 50 tests without recharging.

Most Spectrex optical flame detectors, including UV, UV/IR, single band IR, Triple and Multi band IR types, etc., have automatic integral self-tests (BIT) to check window cleanliness and sensor operation. However, the automatic self-test only partially checks the operational readiness of a detector as the actual alarm outputs are not activated (and rightly so as these tests are performed every 15 minutes).

Using an external, portable Spectrex Flame Simulator is the best means to perform a full functionality, "end-to-end" test of the Detector and the Fire Protection System without the need to start a real fire (which is not permitted in hazardous areas and can be dangerous in non-hazardous areas).

The Spectrex Flame Simulator is the only safe method to test the flame detector's sensors, internal electronics, alarm activation software, cleanliness of the viewing window/lens, wiring integrity, actual relay activation, and

SPECTREX 40/40I TRIPLE IR FLAME DETECTOR

BEAM COLLIMATOR

Avoids the cost of scaffolding or supports to access the detector – able to test at distances up to 29ft (9m) from the detector location!

The drawing is for demonstration only

With Beam Collimator

Without Beam Collimator

The specially designed Beam Collimator attachment (part no. 20/20-190) can be used to extend the simulator's testing distance, thus facilitating easier testing and encouraging the testing to be carried out – all without the need for costly access equipment.

proper functionality of any other outputs used (mA, RS485, HART).

Also, our Flame Simulator is the only practical method to test the complete Fire Alarm System and ensure that all the system wiring and cabling as well as the system control panel(s) is properly installed.

The external Flame Simulator also verifies that the detector has an unobstructed view of the fire detection area. All optical flame detectors are line-of-sight devices; therefore, they must be properly positioned and angled with an unobstructed view of the intended detection area so that they can "see" in order to detect flames/fires. A physical obstruction in the detector's partial or full field of view can seriously compromise the integrity of the fire detection ("blind") and protection system.

These 'obstructions' include:

- Overspray with paint, vehicles, masking tape, storage boxes and hanging garments, tarpaulins, etc., physically covering the detector's window viewing lens.

- Detector mounting bracket breakage, failure or misalignment, where the detector is then improperly 'aimed' at the correct fire detection area. The detector must be able to "see" the fire. Since most optical flame detectors are used in industrial applications, vibration, physical impact, maintenance, cleaning, etc., can

cause improper detector orientation, resulting in an unprotected detection zone even though the detector is reporting a successful automatic self-test to the Fire Alarm Panel. This kind of "false security" could be disastrous if an actual fire occurred in this unprotected area.

- Storage crates, equipment, air ducts or pipes placed or installed after Fire Protection System commissioning that are in the detector's direct field of view of the detection area. Again, the detector with automatic self-test will report to the Fire Alarm Panel that it is working properly even though it is unable to alarm to a fire occurring in its detection coverage area.

Using an external Flame Simulator verifies a flame detector's viewing window cleanliness and its internal electronic operation similar to an internal automatic detector self-test. However, importantly, it will also functionally test its critical alarm outputs, whether relay contact activation, 4-20mA alarm output, RS-485 ModBus digital output or HART, the detector and system's wiring terminals, cabling and its connections, Fire Alarm Panel functionality, proper alarm notification, and, if desired, actual suppression release, etc. (If an actual suppression release is NOT desired, this action must be disabled at the Fire Alarm Release Panel prior to Flame Simulator use.)

MODEL SELECTION

Type 20/20-310 for Triple IR (IR3) Flame Detector models	40/40I 20/20XI 20/20MI 20/20CTIx	20/20I 20/20SI 20/20FI
Type 20/20-311 for UV and UV/IR Flame Detector models	UV/IR 40/40L-LB 40/40L4-L4B 20/20F UV 40/40U-UB	20/20L-LB 20/20ML 20/20U-UB
Type 20/20-312 for Single IR Flame Detector models	40/40R	20/20R
20/20-313 for Hydrogen Flame Detector models	40/40M	20/20SH

Model	Detector types	Detector Sensitivity Setting	Testing Distance Standard*	With collimator
20/20-310	40/40I & 20/20I, SI, XI, CTIx	50 ft (15m) 100 ft (30m) 150 ft (45m) 200 ft (60m)	3.8 ft (1.2m) 7 ft (2.2m) 10 ft (3.2m) 14.5 ft (4.5m)	7 ft (2.2m) 14.5 ft (4.5m) 22 ft (7m) 29 ft (9m)
	20/20MI-1	33 ft (10m) 65 ft (20m) 100 ft (30m) 132 ft (40m)	2.3 ft (0.7m) 4 ft (1.2m) 6.6 ft (2m) 10 ft (3.0m)	3.3 ft (1m) 8.2 ft (2.5m) 13.2 ft (4m) 20 ft (6m)
	20/20MI-3	8.2 ft (2.5m) 16.4 ft (5m) 24.7 ft (7.5m) 33 ft (10m)	NA 1 ft (0.3m) 1.6 ft (0.5m) 2.3 ft (0.7m)	NA NA NA NA
20/20-311	40/40U-UB, L-LB & 20/20U-UB, L-LB, ML	50 ft (15m)	14.5 ft (4.5m)	29 ft (9m)
	40/40L4-L4B	50 ft (15m)	2.4 ft (0.75m)	NA
	20/20F	18 ft (6m)	2.4 ft (0.75m)	NA
20/20-312	40/40R & 20/20R	16.5 ft (5m) 50 ft (15m)	NA 2.4 ft (0.75m)	NA NA
20/20-313	40/40M & 20/20SH	25 ft (7.5m) 50 ft (15m) 75 ft (22 m) 100 ft (30 m)	11 ft (3.5m) 14.5 ft (4.5m) 22 ft (7m) 29 ft (9m)	NA NA NA NA

* At extreme temperatures,15% Max. Reduction in testing range   NA – Not Applicable

GENERAL SPECIFICATIONS

Temperature Range	-4° to +122°F (-20° to + 50°C)
Vibration Protection	1g (10-50Hz)

ELECTRICAL SPECIFICATIONS

Power	8VDC (6 rechargeable 1.2VDC NiCad batteries)
Current	2.5A average
Charge	400mA for 14 hours

PHYSICAL SPECIFICATIONS

Dimensions	11 x 10.1 x 3.9 in (292 x 258 x 100 mm)
Weight	7.5lbs (3.4kg)
Hazardous Area Approval	ATEX approved EX II 2G, Nemko 02ATEX255; EExd IIB T5 (50°C), IP67
Warranty	1 year

Specifications subject to changes

For more information view manual or website www.spectrex-inc.com