

# X-Series UL Multi-Criteria Detector (Smoke/Heat)



## Product Overview

Product	X-Series UL Multi-Criteria Detector (Smoke/Heat)
Part No.	S-A5014
Digital Communication	Discovery and CoreProtocol®

## Product information

The X-Series UL Multi-Criteria Detector (Smoke/Heat) is Shield's most advanced detector offering suitable for a wide range of applications. It uses Purelight® high-tech smoke sensing technology to detect smoke particles entering the chamber and is fitted with two thermistors for detecting heat. It can be switched to detect smoke, heat or a combination of both, offering greater flexibility, fast detection and advanced false alarm management.

- Approved to UL 268 7th edition and UL 521
- Built-in isolator
- FasTest™ for quicker testing of detectors
- Purelight® optical technology for enhanced smoke detection and false alarm management
- Drift compensation
- Base locking mechanism (grub screw)
- In-built self test
- XPERT card hard addressing
- Capable of soft addressing
- Dual heat sensors

## Product Overview



**CAUTION:** System compatibility  
The X-Series UL Multi-Criteria Detector (Smoke/Heat), Part No. S-A5014 should only be used with compatible fire control panels.

All data is supplied subject to change without notice. Specifications are typical at 24 V, 73 °F and 50 % RH unless otherwise stated.

Digital communication protocol	Discovery and CoreProtocol	
Supply wiring	Two wire supply, polarity sensitive	
Sensitivity	1.2 - 2.1 %/ft	
Supply voltage (Vmin-Vmax)	17 V – 28 V dc	
Sampling frequency	Once per second	
Modulation voltage	5 V - 9 V peak to peak	
Supervisory current	500 µA	
Switch-on surge current	1.0 mA	
Alarm/Operated current, LED On	4.0 mA	
Status indicator	Alarm	Red
	Fault	Flashing yellow
	Isolate	Yellow
	Poll	Flashing Green
Additional Remote LED Current	5 mA maximum	
Product operating temperature	32 °F to 131 °F (0°C to 55°C)	
Effect of atmospheric pressure	None	
Air velocity	0 - 300 fpm	
Humidity	0% to 95% RH (no condensation or icing)	
IP rating	IP44	
Standards and Approvals	UL268 7th Edition, S25422	
Dimensions	4 in.(100 mm) diameter x 1.51 in. (38.5mm) height (1.98 in. (50.5) mm height with XPERT8 Intelligent Mounting Base)	
Weight	2.93 ozs. (83 g)	
Materials	Housing: White flame-retardant polycarbonate Terminals: Tin plated stainless steel	
Maximum spacing (Mode 5 Only)	50 ft (15.24 m)	



**Table 1: X-Series detector feature availability**

	Protocol	
	Discovery	CoreProtocol
Drift compensation value	✓	✓
Rapid compensation	✓	✓
Sensitivity modes	✓	✓
Conventional alarm	✓	✓
Integrated isolator	✓	✓
Controllable isolator*	X	✓
Flashing polling remote	X	✓
Tamper	X	✓
Auto-addressing	X	✓
FasTest®	X	✓
Live sensor values	X	✓
Group control of remote output	X	✓

**Notes:**

- \*Only available when device is mounted on an Intelligent Base, Part No.S-A5001

**Device addressing**

A Universal XPERT card is supplied with all Intelligent Mounting Bases.

**Table 2: Address ranges**

	XPERT 7 card	Universal XPERT card
Discovery protocol	1 - 126	1 - 126
CoreProtocol	129 - 254	1 - 254

When X-Series UL devices are used with CoreProtocol, device auto-addressing can be enabled by fire control panels that have been designed to incorporate this feature.

**Table 3: Isolated detector data**

Maximum loop current (I c max; L1 in/out)	1 A
Maximum series resistance (Z c max; L1 in/out)	100 mΩ

**Operating modes**

X-Series multisensor detectors on a CoreProtocol system give the choice of five operating modes which respond as follows:

- Modes 1, 3 and 4 - Multi-Criteria response
- Mode 2 - Optical only response
- Mode 5 - Heat only response

**Operation**

The low profile design of the X-Series UL Multi-Criteria Detector (Smoke/Heat) is sleek and evolutionary, with a 360° LED indicator which illuminates red when in alarm.

At the heart of the smoke sensor is Purelight® Sensing Technology which incorporates:

- Cone technology combined with a high-intensity infrared LED to provide stability and accurate sensitivity to smoke.
- A sophisticated dynamic algorithm, providing transient rejection and compensation for drift whilst maintaining accurate sensitivity.

Signals from the smoke chamber and temperature sensors are independent and represent the smoke level and air temperature respectively in the vicinity of the detector; the detectors micro-controller processes both signals. The temperature signal processing extracts only rate-of-rise information for combination with the smoke signal.

The optical sensor will trigger an alarm at 1.2 %/ft and the heat sensor at 69.8 °F (21 °C) rise. Minimum time to alarm is ten seconds.

The detector will not respond to slow increases in temperature, but a large, sudden change can cause an alarm without the presence of smoke.

The sensor will respond to smoke or heat, or a combination of both.

**System compatibility**

X-Series detectors has been designed to operate on Discovery and CoreProtocol loops. This allows for X-Series detectors and bases to operate on existing systems.

**Maintenance and service**

X-Series detectors have been designed with a comprehensive set of features to support maintenance and service, from self test capabilities to drift compensation warnings on dirty detectors.

**Compatible Bases**

Part Number	Product Name
S-A5001	X-Series Detector Base-4*