

## FFO-SMOKE - PHOTOELECTRIC SMOKE SENSOR



*Shown without base*

### STANDARD FEATURES

- Low Profile - Only 2.0" high, including base
- Simple and reliable device addressing method
- Automatic compensation for sensor contamination
- Built-in fire test feature
- Uses the noise immune Digital Communication Protocol (DCP), which utilizes interrupts for fast response to fires
- Two built-in power/alarm LED's
- Programmable Non-polling LED's
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Removable smoke labyrinth for cleaning or replacement
- Compatible with the FFO-HEAT heat detector

### SPECIFICATIONS

Operating Voltage	17-41 VDC
Standby Current	390µA
Alarm Current	800µA
Transmission Method	DCP - <i>Digital Communication Protocol</i>
Maximum Humidity	95% RH Non-Condensing
UL Ambient Installation Temperature Range	32°F to 100° F (0° C to 37.8° C)
Operating Temperature Range	14°F to 122° F (-10° C to 50° C)
Sensitivity Range	0.5 - 3.8%/FT @ 300FPM 0.5 - 2.74%/FT @ 2000FPM 0.5 - 2.68%/FT @ 4000FPM
Air Velocity Range	0-4000 fpm
Color & Case Material	Bone PC, Black / ABS Blend
Weight	3.4oz (5.1 oz. with 4" base)
Bases	FFO-4BASE FFO-6BASE & FFO-SBASE

### APPLICATION

The HOCHIKI America FFO-SMOKE Photoelectric Smoke Sensor is particularly suited to detecting optically dense smoke typical of fires involving materials such as soft furnishings, plastic, foam or other similar materials which tend to smolder and produce large visible smoke particles. Hochiki's unique design allows fast response to flaming fires as well as smoldering fires while eliminating false alarms.

### OPERATION

The detection chamber consists of a light emitting diode (LED) and photodiode arrangement. The chamber is designed such that light emitted by the LED cannot normally reach the photo diode. In the event of fire, particles of smoke enter the chamber and scatter the light. As the smoke level increases, the scattering effect increases, causing more light to hit the photodiode. The chamber contains a unique baffle design which allows smoke to enter the chamber while preventing external light from affecting the photodiode. The photodiode input level is sampled to sense smoke density.

When the smoke density exceeds a preset threshold the sensor transmits an interrupt to the fire control panel indicating a fire condition. The fire alarm control panel can adjust the sensor threshold to compensate for contamination.

Up to 127 devices are permitted on each loop. A sensor address can be set by a hand held programming unit. The sensor mounts to an electronics free base and incorporates a locking mechanism for secure installation. The base provides mounting slots, terminals for field wiring and a third contact for a remote indicator/LED. The sensor incorporates dual LED's for easy viewing of sensor status.

### ENGINEERING SPECIFICATIONS

The contractor shall furnish and install where indicated on the plans, photoelectric sensors HOCHIKI America Model FFO-SMOKE. The combination sensor head and twist lock base shall be UL listed compatible with a UL listed fire alarm control panel.

### PRODUCT LISTINGS



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## ENGINEERING SPECIFICATIONS, *continued*

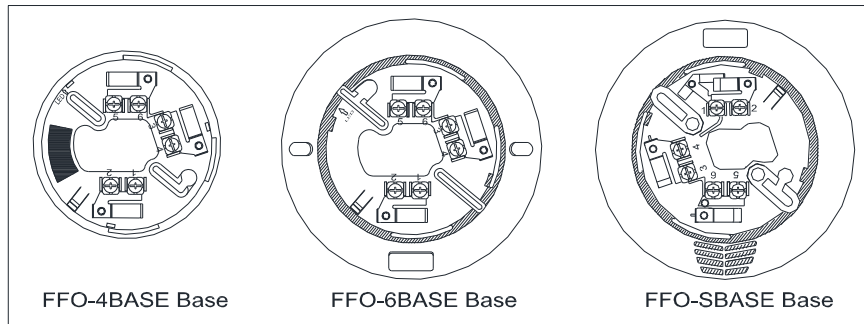
The base shall permit direct interchange with the HOCHIKI America FFO-HEAT heat sensor.

The sensitivity of the sensor shall be capable of being measured by the control panel.

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when required.

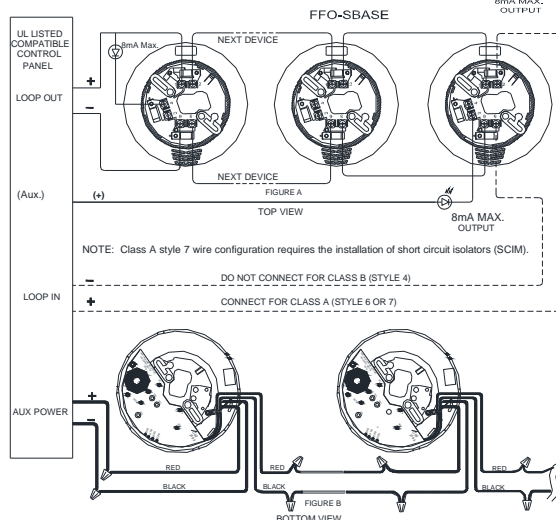
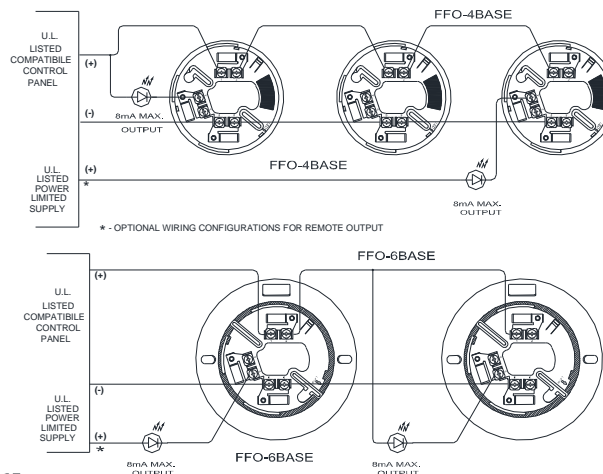
## BASES

The HOCHIKI America except for FFO-SBASE both FFO-4BASE and the FFO-6BASE mounting bases are electronics free and are a simple rugged design with screw terminals for wiring connections. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can be removed using a small diameter screw driver.



## TYPICAL WIRING DIAGRAMS

NOTE: Fire alarm control panel compatibility is required for DCP products. State-of-the-art DCP, communications protocol, DCP, allows system components (DCP sensors FFO-SMOKE and FFO-HEAT, bases and modules), to be used concurrently in a system's signaling line circuit.



NUMBER OF FFO-SBASE PERMITTED	
# of Bases In Alarm	Maximum Auxiliary 24VDC Power Wire Resistance (Total Auxiliary Run Length)
127	1.4 ohms
75	2.4 ohms
60	3.0 ohms
50	3.6 ohms
30	6.1 ohms
20	9.1 ohms
15	12.2 ohms
10	18.3 ohms

NOTE: SLC maximum wiring resistance is 50 ohms.