Data Sheet

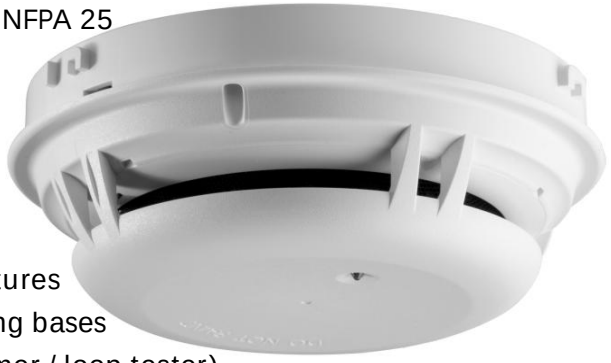
Intelligent Detection Devices

Multi-Criteria Fire / CO Detector [with ASA*technology*™]

Model OOHC941

ARCHITECT AND ENGINEER SPECIFICATIONS

- Advanced multi-criteria fire detector that has optical, thermal and CO sensors
- Differentiates between deceptive phenomena and an actual fire (nuisance-alarm avoidance)
- Provides enhanced detection via forward-and-backward light-scattering technology
- Supervisory feature for temperature and CO-concentration-threshold monitoring
- ℗UL Listed and FM Approved as a multi-criteria and 'VEWFD' fire detector
- Complies with NFPA 76 (Telco standard) as 'VEWFD' high-sensitivity detector
- Compatible with Siemens Model 'H'-series devices on the same loop
- Low-temperature warning for sprinkler systems, per NFPA 25
- ℗UL 268A Listed for direct air-duct (4,000 FPM) use
- Remote sensitivity-measurement capability
- Tri-color detector status LED with 360° viewing
- Environmental alternative to ionization detectors
- Polarity insensitive utilizing *SureWire*™ technology
- Responds to both flaming and smoldering-fire signatures
- Compatible with legacy Model DB-11–series mounting bases
- Compatible with Model 8720 / DPU (device programmer / loop tester)
- Meets ℗UL, NFPA 72 sensitivity self-monitoring requirements
- Automatic environment compensation
- Up to 26 application profiles
- ℗UL 2075 and NFPA 720 CO life-safety compliant
- ℗UL 268 / RoHS compliant



- ℗UL Listed,
  ℗ULC-S529 Listed (for smoke detection) /
  ℗ULC-S530 Listed (for heat detection);
  FM (#3230, 3210) Approved, and CSFM (#7272-0067:0258) Approved

Product Overview

Model OOHC941 is an advanced, multi-criteria fire / CO detector that incorporates a redundant, optical / thermal sensor with a carbon monoxide (CO) sensor. Model OOHC941 uses a unique forward / backward light-scattering technology providing state-of-the-art, unparalleled fire detection to the widest range of fire types.

Model OOHC941 is programmable as a high-sensitivity detector, and meets the requirements of NFPA 76 Standard (*for the Fire Protection of Telecommunications Facilities*) as a Very Early Warning Fire Detector (VEWFD).

The Model OOHC941 detector is a flexible, multi-purpose detector, providing a complete solution to meet fire and CO life-safety gas-detection needs. The Multi-Criteria Fire / CO Detector can be field programmed for simultaneous and / or independent functionality, depending on the exact customer and application requirements.

For instance, the detector can utilize the optical, heat and CO sensors together for enhanced fire detection (multi-criteria), as well as simultaneously provide independent outputs for CO gas life-safety and heat detection. Any combination of the sensors is possible. The detector is extremely versatile and meets the following standards:

Product Overview — (continued)

- Multi-criteria fire detector (ULUL 268)
- Carbon Monoxide (CO) Gas detector (ULUL 2075)
- Heat detector (ULUL 521) with five (5) possible field-selectable temperatures; combined with four (4) rate-of-rise options
- Direct in-duct (plenum) detector (ULUL 268A)
- Supervisory monitoring for CO levels and temperature ranges
- NFPA 76 (Telco Standard) as VEWFD
- Low-temperature warning signal at 40°F (4.4°C) — for sprinkler systems, per NFPA 25 / NFPA 72

Model OOHC941 — which provides extremely accurate and reliable fire detection with built-in redundancy — utilizes advanced, multi-criteria detection technology known as ASA (Advanced Signal Analysis) that allows the detector to distinguish non-threatening deceptive phenomena.

For instance, the signals from the detector's sensors are monitored and processed via the ASA-patented algorithm technology, which combines the signals into a neural network to create an intelligent, multi-criteria detector.

The encompassing result is a detector that provides enhanced detection to a wide range of products of combustion — while offering unsurpassed rejection to nuisance-alarm sources, such as: dust, steam, aerosols and other deceptive phenomena that could cause false alarms.

Since the multi-criteria, CO detector is a (2) two-wire, addressable device, it is then able to function as a multi-purpose detector — satisfying fire, heat and carbon monoxide (CO) gas detection in a singular, aesthetically pleasing package. Further, Model OOHC941 serves as an extremely cost-effective, viable solution that saves product, installation and maintenance costs (compared to other multiple-detector alternatives). Each detector fits into one (1) wall-or-ceiling footprint, and only occupies one (1) address on the signal-line circuit (SLC).

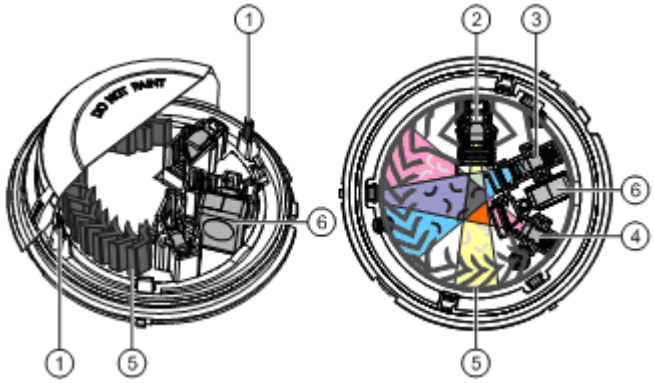
A patented forward-and-backward, light-scattering technology — which is able to distinguish both small and large products of combustion — operates at the core of each Model OOHC941 detector.

Additionally, each Model OOHC941 provides an environmental-friendly solution to ionization detectors, eliminating the need for a radioactive source and eventual disposal requirements. Thus, each detector is capable of detecting both smoldering and flaming fire — all in ecologically efficient manner — and is a valid, RoHS-compliant (Restriction of Hazardous Substances) detection alternative to ionization detectors.

Two (2) thermal sensors and an electromechanical CO sensor are also included, making each Model OOHC941 detector a robust, reliable device suitable for the most challenging applications. Model OOHC941 also works as a carbon monoxide (CO) life-safety gas detector, compliant with NFPA 720 and ULUL 2075.

Operation

Forward-and-Backward Light-Scattering Technology (with CO sensor)



1. Heat sensors
2. Receiver
3. Backward scatterer
4. Forward scatterer
5. Labyrinth
6. CO sensor

The high-quality, optical-electronic measuring chamber for each Model OOHC941 houses the following components:

- ✓ Two (2) optical transmitters
- ✓ One (1) optical receiver
- ✓ Two (2) thermal sensors
- ✓ One (1) CO sensor

The transmitters illuminate the smoke particles from different angles: one sensor acts as forward scatterer, the other sensor as a backward scatterer. The scattered light then hits the receiver (photodiode) and generates a measurable electric signal. The combination of a forward-and-backward scatterer facilitates optimum detection, as well as differentiates between light-and-dark particles / particle size.

This type of detection creates standardized, responsive behavior and optimizes the differentiation between wanted signals and deceptive phenomena. In addition, the heat sensors make it possible to detect fires without smoke generation.

The CO sensor enables faster detection of fires with incomplete combustion, as well as fires with the development of high levels of CO. The combination of optical, thermal and CO sensor signals optimizes detection reliability.

Operation — (continued)

This scenario generates the following advantages:

- ✓ Early detection of all fire types of fire — whether they generate light-or-dark smoke, or no smoke
- ✓ The fire detector can be operated at a lower sensitivity level, thus achieving a higher immunity against false alarms that may otherwise be caused by cold aerosols (e.g. — by smoking, electrical welding, etc.).

  In the case of an open fire, the smoke sensitivity is heightened by a temperature increase — which means that a detection-reliability level that is comparable to a wide-spectrum smoke detector — can be achieved and maintained.

Field-Device Programmer / Test Unit

Model OOHC941 is compatible with the Device Program / Test Unit accessory, which is used to program and verify the address of the detector. The technician selects the accessory's program mode, and enters the desired address. Model 8720 / DPU automatically sets and verifies the address and tests the detector.

Model 8720 / DPU eliminates the need for cumbersome, unreliable mechanical programming methods — such as dials or switches — and reduces installation and service costs by electronically programming and testing the detector prior to installation.

Model 8720 / DPU operates on AC power or rechargeable batteries, providing flexibility and convenience in programmer and testing equipment from practically any location.

When in 'test' mode, Model 8720 / DPU will perform a series of diagnostic tests without altering the address or other stored data, allowing technicians to determine if the detector is operating properly.

Field-selectable application profiles

Model OOHC941 provides 26 user-friendly, field-selectable application profiles, indentified with universally known names (e.g. — Hotel, Telco, Office, Parking Garage, Dormitory, and Data Center etc.) Refer to installation manual: P/N— A6V10324657 for a complete list and description of application profiles.

Due to generic-name classification, no cross-reference tables are required as the application name resides in the panel's configuration tool. This user-friendly feature — along with the algorithms provided by ASA*technology* — provides a reliable, field-configurable detector suitable for an array of applications.

Field-selectable temperature settings

Model OOHC941 provides five (5) field-selectable temperature thresholds, ranging from 135°F to 175°F (57°C to 79°C), with fixed and rate-of-rise options. These ranges provide maximum flexibility to program and easily adjust the temperature settings that suit multiple application needs within a building or changing environmental conditions.

Additionally, Model OOHC941 can be configured to provide a low-temperature warning signal at 40°F (4.4°C).

Model OOHC941 occupies only one (1) address on the SLC and provides a CO cell end-of-life warning and fault condition meeting NFPA 720 and ®UL 2075 requirements.

Model OOHC941 — in combination with FireFinder® XLS, as well as the Models FC922 and FC924 fire-safety systems from Siemens — provide an ideal NFPA 720-compliant system with separate-and-distant signaling for the carbon monoxide (CO) life-safety and fire signals.

This configuration (along with connection to a compatible fire alarm control panel {FACP}) meets NFPA 72 requirements for sprinkler-temperature monitoring, and serves as prevention of water freezing in pipes for water-based suppression systems.

Ambient supervisory feature for temperature and for Carbon Monoxide (CO)

Another highlight for Model OOHC941 is supervision of ambient temperatures, allowing the end user to set an unique, specified warning point at a customized temperature threshold ranging from -4°F to 120°F (-20°C to 49 °C). This feature is practical for monitoring of machinery; special processes, or for environments where maintaining a temperature is critical as an early-warning supervisory signal.

Optionally, Model OOHC941 also provides supervision of the carbon-monoxide (CO) level selected by the customer. The CO supervision is provided in addition to the normal ®UL 2075 and NFPA 720 alarm levels, and is customizable by the user for special applications. Configurable range is 30 — 600 PPM with a compatible FACP.

CO Detection

In addition to the multi-criteria functionality, the Model OOHC941 detector provides an independent carbon monoxide (CO) life-safety signal that meets the requirements of NFPA 720 and ®UL 2075, and meets CO sensitivity limits of ®UL 2034 standard. The detector operates from a reliable electrochemical CO cell, transmitting CO concentration on an independent signal separate from the fire-detection signals to the FACP.

This method is especially useful for any building that uses fossil-burning fuel sources, due to the potential of increased CO intoxication risk. Some application examples include: hotel; heating rooms; car parks; combustion power plants; automotive workshops; chemical labs, or production sites.

Operation — (continued)

Self-monitoring for smoke-sensor sensitivity

Model OOHC941 provides an automatic self-monitoring sensitivity check that complies with the NFPA 72 sensitivity requirements. When connected with a compatible FACP, it provides automatic and dynamic sensitivity verification within the agency-listed-and-approved limits. Besides checking for sensor integrity and automatic environmental compensation, Model OOHC941 provides a display and report of sensitivity in percent-per-foot (or percent-per-meter) at the FACP.

Profile Overview

The Multi-Criteria / CO detector contains a tri-color LED indicator, capable of flashing any one (1) of three (3) distinct colors: green, yellow, or red. During each flash interval, the microprocessor-based detector monitors the following:

- Smoke in its sensing chamber
- Smoke sensitivity is within the range indicated on the nameplate label
- Internal sensors and electronics

Based on the results of the monitoring, the LED indicator flashes the following:

Flash Color	Condition	Flash Interval (in seconds)
Green*:	Normal supervisory operation. Smoke sensitivity is within rated limits.	10
Yellow:	Detector is in trouble and needs replacement.	4
Red:	Alarm condition.	1
No Flash:	Detector is not powered.	— —

* LED can be turned OFF.
Please follow the corresponding description of the panel used.

A quick, visual inspection is sufficient to indicate the condition of the detector at any time. If more detailed information is required, a printed report can be provided from the Model FC9-series FACPs, indicating the status and settings assigned to each individual detector.

Installation

All Model OOHC941 detectors use a surface-mounting base (Model DB-11 or Model DB-11E), which mounts on a 4-inch octagonal, square or single-gang electrical box. The base utilizes screw-clamp contacts for electrical connections and self-wiping contacts for increased reliability.

The Model DB-11 base can be used with the optional Model LK-11 detector locking kit, which contains 50 detector locks and an installation tool to prevent unauthorized removal of the detector head. Model DB-11 has decorative plugs to cover the outer mounting screw holes.

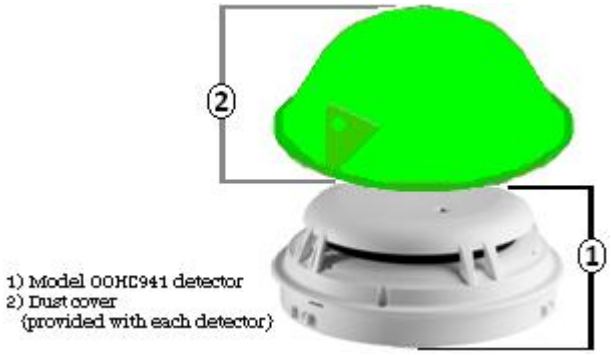
Model OOHC941 may be installed on the same initiating circuit with the Siemens Model 'H'-series detectors [when used with the Model FC9-series of FACPs] —

- Models HFP-11, HFPT-11
- Model 'HMS'-series manual stations
- Model 'HTRI'-series interfaces
- Model HCP output-control devices
- Model 'HZM'-series of addressable, conventional zone modules

Each detector consists of the following:

- Dust-resistant photoelectric chamber
- Solid state, non-mechanical thermal sensor
- CO sensor
- Microprocessor-based electronics with a low-profile plastic housing

Each Model OOHC941 fire detector is shipped with a protective dust cover:



All Model OOHC941 detectors are approved for operation within the ®UL-specified temperature range of 32° to 120°F (0° to 49°C) — depending on heat-detector configuration (see to installation manual: P/N A6V10324657) for details.

Application Data

Installation of Model OOHC941 detectors requires a two-wire circuit. In many retrofit cases, existing wiring may be used. 'T-tapping' is permitted only for Style 4 (Class B) wiring. Model OOHC941 is polarity insensitive, which can greatly reduce installation and debugging time.

Model OOHC941 fire detectors can be applied within the maximum 30-feet center spacing (900 sq. ft. areas,) as referenced in NFPA 72. This application guideline is based on ideal conditions — specifically, smooth ceiling surfaces; minimal air movement, and no physical obstructions between potential fire sources and the actual detector. Do not mount detectors in close proximity to ventilation or heating and air conditioning outlets. Exposed joints or beamed ceilings may also affect safe spacing limitations for detectors.

Operation – (continued)

Should questions arise regarding detector placement, observe NFPA 72 guidelines. Good fire-protection system engineering and common sense dictate how and when fire detectors are installed and used. Contact your local Siemens Industry – Fire Safety distributor or sales office whenever you need assistance applying Model OOHC941 in unusual applications. Be sure to follow NFPA guidelines and ®UL Listed / ULC Listed installation instructions – included with every Siemens – Fire Safety detector – and local codes as for all fire protection equipment.

Technical Data

Operating Temperatures: +32°F (0°C) to 120°F (49°C)
depending upon heat-detector configurations (see to installation manual: P/N A6V10324657*) for details*

Heat-Detector Range: +135°F (57°C) to 175°F (79°C)

Thermal Rating:

Model OOHC941's Field-Selectable Temperature Profiles

Fixed Temperature, 135°F
Fixed Temperature, 145°F
Fixed Temperature, 155°F
Fixed Temperature, 165°F
Fixed Temperature, 175°F
Fixed Temperature, 135°F + Rate-of-Rise (R-o-R) 15°F
Fixed Temperature, 175°F + Rate-of-Rise (R-o-R) 15°F
Fixed Temperature, 135°F + Rate-of-Rise (R-o-R) 20°F
Fixed Temperature, 175°F + Rate-of-Rise (R-o-R) 20°F

Field-Selectable, Alarm-Threshold Setting Profiles

2.5 % / ft. threshold
3.0 % / ft. threshold
2.5 % / ft. threshold (verified)
3.0 % / ft. threshold (verified)

Detector Sensitivity Range: ®UL: 0.77% to 3.82% / ft.
NFPA 76 (Telco) VEWFD:
0.2% / ft. Pre-*alarm*,
1.0% / ft. *Alarm*

Application Profiles: 26 (field configurable)

Technical Data – (continued)

Programmable Supervisory Temperature Warning *available with compatible FACPs*:
-4°F (-20°C) to 120°F (49°C)

Programmable Supervisory CO-gas Warning *available with compatible FACPs*:
30 – 600ppm

CO Concentration Response Times:
70 ±5 PPM in 60 – 240 minutes
150 ±5 PPM in 10 – 50 minutes
400 ±10 PPM in 4 – 15 minutes

Note: *Meets ®UL 2075 Standard and has been tested to the sensitivity limits defined in ®UL 2034 Standard. Additionally complies with NFPA 720 code.*

Relative Humidity: 0-95%; non-condensing

Air Velocity –
(Open Area): 0 – 4,000 feet-per-minute (fpm)
Direct-in-Duct: 0 – 4,000 (fpm)

Air Pressure: No effect

Maximum Spacing: 30-foot centers (900 sq. ft.), per NFPA 72 and ULC-S524 Listed

Input Voltage Range: 13VDC – 32VDC

Alarm Current: 650µA, max.

Quiescent (Standby) Current: 320µA – 400µA

Detector Weight: 0.281 lbs. (0.128 kg.)

Approvals / Standards:

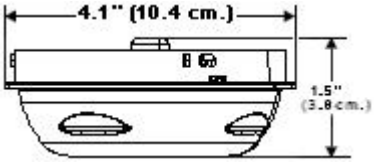
FM	3210, 3220
CSFM	7272-0067:0260
®UL 268	NFPA 25
®UL 268A	NFPA 72
®UL 521	NFPA 76
®UL 2075	NFPA 720

– meets CO sensitivity limits of ®UL 2034 standard
ULC-S524 Listed

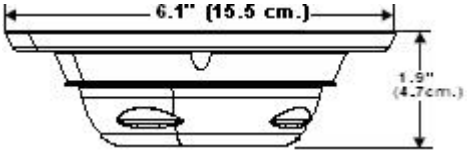
Mechanical Protection Guard:
®UL Listed / ULC Listed
with STI Guard Model STI-9604

Mounting Diagrams

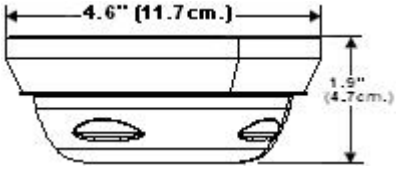
Dimensions



Model OOHC941



Model OOHC941
with Model DB-11 base



Model OOHC941
with Model DB-11E base

FACP Compatibility Table

Model Number	Data Sheet Number	Description
—	6300	FireFinder XLS (System Overview)
FC901	9813	50-point addressable panel
FC922	9815	252-point system (networkable)
FC924	9815	504-point system (networkable)

Details for Ordering

Model Number	Part Number	Description
OOHC941	S54320-F8-A2	Multi-Criteria Fire / CO Detector with ASA*technology*™
DB-11	500-094151	Detector Mounting Base
DB-11E	500-094151E	Detector Base {small}
DB2-HR	S54320-F12-A1	Relay Base
RL-HC	500-033230	Remote Alarm Indicator: 4" octagon-box mount, red
RL-HW	500-033310	Remote Alarm Indicator: single-gang box mount, red
FDBZ492	S54319-B22-A1	Addressable Air-Duct Housing
FDBZ492-HR	S54319-B23-A1	Addressable Air-Duct Detector with Relay
LK-11	500-695350	Base Locking Kit

STI-9604	—	STI Mechanical Protection Guard

See: www.STI-USA.com for ordering Model STI-9604

s Cerberus® PRO

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