Intelligent Detection Devices

Thermal (Heat) Detector
Model HI921

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

ARCHITECT AND ENGINEER SPECIFICATIC Date: 06/01/16

- **Provides seven (7) field-selectable settings in the 135° – 174°F (57.2° – 78.9 [illegible] temperature range**
- **Tri-color detector-status light-emitting diode (LED) with 360° viewing**
- **Compatible with Model DPU (device programmer / loop tester)**
- **Utilizes advanced microprocessor-based signal processing**
- **Provides a low-temperature warning at 40°F (4.4°C)**
- **Each detector is self-testing:**
  - **complete diagnostics performed every 10 seconds**
- **Polarity insensitive utilizing *SureWire*™ technology**
- **Compatible with Model DB-11–series mounting bases**
- **Field programmable as rate-of-rise or fixed temperature**
- **Compatible with Siemens Model 'H'-series devices on the same loop (with Model FC9–series fire-alarm control panels)**
- **Superior EMI / RFI immunity**
- **RoHS compliant**
- **UL Listed and ULC Pending; CSFM Approved**

Product Overview

The Intelligent Thermal (Heat) Detector (Model HI921) provides an advanced method of detection, address programming and supervision — combined with sophisticated FACP communication. Model HI921 uses a state-of-the-art thermistor, microprocessor and advanced signal analysis, providing high reliability and accuracy.

Further, Model HI921 is a cost-effective, two-wire / addressable thermal detector that provides a distinctive, advanced feature: field-selectable temperature settings specially tailored for application-specific detection needs.

Model HI921 provides seven (7) field-selectable temperature-range settings: 135°F (57°C) — 174°F (79°C) with fixed and rate-of-rise programmability. This variance provides the customer with maximum flexibility to program the temperature settings to suit multiple application needs and changing environmental conditions.

Additionally, Model HI921 can be configured to provide a low-temperature warning signal at 40°F (4.4°C). This feature – along with a compatible FACP (either Model FC922 or Model FC924) – serves as prevention of water freezing in pipes for sprinkler systems, meeting NFPA 72.

Model DPU

Model HI921 is compatible with the Siemens field-device programmer / test unit (Model DPU), which is a compact, portable, menu-driven accessory for electronically programming and testing detectors easily and reliably.

Model 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.

Each detector consists of a solid state, non-mechanical thermal sensor, and microprocessor-based electronics with a low-profile plastic housing. The Model HI921 thermal (heat) detector is Underwriters' Laboratories (UL) Listed.

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Product Overview — (continued)

Each Model HI921 detector base also contains a provision for an optional, concealed locking mechanism to prevent unauthorized removal of the detector head (Model LK-11).

For proper operation of Model DPU, the technician selects the accessory's program mode, and enters the desired address. In turn, Model DPU automatically sets and verifies the address, as well as tests the detector. When in the 'test' mode, Model 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.

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

Operation

Model HI921 also utilizes a modern, accurate and shock-resistant thermistor to sense temperature changes:

1 Thermister

Each Model HI921 detector provides seven (7) pre-programmed parameter sets that can be selected by the FACP.

Detector Supervision and Testing

Model HI921, which is listed as a self-testing device, contains a tri-color light emitting diode (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:

- Temperatures reaching programmed thresholds
- Internal sensors and electronics are functional

Based on the monitoring results, the LED indicator flashes the following colors based on the following conditions:

Flash Color	Condition	Flash Interval (in seconds)
Green*:	Normal supervisory operation. Temperature has not reached programmed alarm thresholds or set points.	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 sufficie
the detector at any time. If more d
required, a printed report can be pr
series FACPs indicating the status a
individual detector.

Installation

All Model HI921 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 HI921 may be installed on the same initiating circuit with the Siemens Model 'H'-series detectors [when used with the Model FC9-series of FACPs] —

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

Application Data

Installation of Model HI921 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 HI921 is polarity insensitive, which can greatly reduce installation and debugging time.

Model HI921 can be applied within the maximum 50-feet center spacing (2,500 sq. ft. areas), per ®UL. 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.

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 — Fire Safety distributor or sales office whenever you need assistance applying Model HI921 in unusual applications. Be sure to follow NFPA guidelines and ®UL Listed / ULC Pending installation instructions — included with every Siemens – Fire Safety detector — and local codes as for all fire-protection equipment.

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Specifications

Model HI921 is a plug-in, (2) two-wire thermal (heat) detector, compatible with Model FC9-series FACPs. Each Model HI921 detector has microcomputer-chip technology and highly stable, solid-state electronic circuitry.

The Model HI921 detector utilizes a modern, accurate and shock-resistant thermistor to sense temperature changes.

This electronic-sensing method virtually eliminates thermal lag associated with mechanical temperature-sensing devices, and provides almost instantaneous temperature status to the FACP.

Model HI921 provides seven (7) field-selectable, pre-programmed temperature settings:

- Fixed 135°F (57°C)
- Fixed 145°F (63°C)
- Fixed 155°F (68°C)
- Fixed 165°F (74°C)
- Fixed 174°F (79°C)
- Rate-of-Rise: 15°F / min. (8.3°C) at fixed 135°F (57°C)
- Rate-of-Rise: 15°F / min. (8.3°C) at fixed 174°F (79°C)

Additionally, the Model HI921 detector has the following optional feature:

- Model HI921 provides indication of potential water freezing for sprinkler systems, via configuration for reporting a low-temperature warning of 40°F (4.4°C). This feature is compatible with Models FC922 and FC924.

Technical Data

Operating Temperature Range: +32°F (0°C) to [with 135°F (5 threshold set

Relative Humidity: 0-95%; n

Air Pressure: No effect

Input Voltage Range: 16VDC – 30VDC

***Alarm* Current (max.):** 410µA

Standby Current (max.): 250µA, max. (average)

Maximum Spacing: 50-foot centers (2,500 sq. ft.), per NFPA 72 and ULC-S524 pending

Thermal Rating:
Model HI921 provides up to seven (7) field-selectable, pre-programmed temperature settings:

- Fixed 135°F (57°C)
- Fixed 145°F (63°C)
- Fixed 155°F (68°C)
- Fixed 165°F (74°C)
- Fixed 174°F (79°C)
- Rate-of-Rise: 15°F / min. (8.3°C / min) at fixed 135°F (57°C)
- Rate-of-Rise: 15°F / min. (8.3°C / min) at fixed 174°F (79°C)

Detector Weight:
0.317 lbs.
(0.144 kg.)

Mounting Diagram

Dimensions

Details for Ordering

Model Number	Part Number	
HI921	S54320-F5-A2	Thermal (
DB-11	500-094151	Detector M
DB-11E	500-094151E	Detector E
RL-HC	500-033230	Remote Alarm Indicator: 4" octagon-box mount, red
RL-HW	500-033310	Remote Alarm Indicator: single-gang box mount, red
LK-11	500-695350	Base Locking Kit

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In Canada, order:

Model Number	Part Number	Description
DB-11C	500-095687	Detector Mounting Base (ULC pending)

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NOTICE — The information contained in this data-sheet document is intended only as a summary, and is subject to change without notice. The devices described here have specific instruction sheets that cover various technical, limitation and liability information.

Copies of these instruction sheets and the *General Product Warning and Limitations* document, which also contains important information, are provided with the product and, are available from the Manufacturer.

Information contained in these documents should be consulted before specifying or using the product. For further information or assistance concerning particular problems contact the Manufacturer.