

Intelligent Detection Devices

Thermal (Heat) Detector Model FDT421

ARCHITECT AND ENGINEER SPECIFICATIONS

- Provides seven (7) field-selectable settings in the 135° – 174°F (57.2° – 78.9°C) 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
- Polarity insensitive utilizing *SureWire™* technology
- Provides a low-temperature warning at 40°F (4.4°C)
- Each detector is self-testing:
 - complete diagnostics performed every 10 seconds
- 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 FireFinder® XLS and Desigo fire systems)
- Superior EMI / RFI immunity
- Restriction of Hazardous Substances (RoHS) compliant



- UL521 Listed and ULC Listed; FM (#3230, 3210), CSFM (#72720067:0258) Approved

Product Overview

The Model FDT421 Intelligent Thermal (Heat) Detector provides an advanced method of detection, address programming and supervision – combined with sophisticated FACP communication. Model FDT421 uses a state-of-the-art thermistor, microprocessor and advanced signal analysis, providing high reliability and accuracy.

Further, Model FDT421 is a cost-effective two-wire / addressable thermal detector that provides a unique, advanced feature: field-selectable temperature settings specially tailored for application-specific detection needs.

Model FDT421 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 FDT421 can be configured to provide a low-temperature warning signal at 40°F (4.4°C). With use of a compatible FACP (FireFinder XLS and Desigo Fire Safety panels), this feature serves as prevention of water freezing in pipes for sprinkler systems, and meets NFPA 72 code.

Model DPU

Model FDT421 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.

Model FDT421 is Underwriters' Laboratories (UL521) Listed as a thermal (heat) detector.

Thermal (Heat) Detector **6151**

Product Overview — (continued)

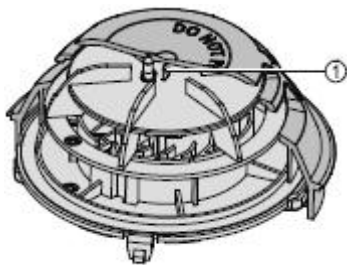
Each Model FDT421 detector base also contains a provision for an optional, concealed locking mechanism to prevent unauthorized removal of the detector head (Model LK-11.)

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 techs 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 FDT421 also utilizes a modern, accurate and shock-resistant thermistor to sense temperature changes:



1 Thermistor

Each Model FDT421 detector provides seven (7) pre-programmed, FACP-selectable parameter sets.

Detector Supervision and Testing

Model FDT421, 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 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 FC20-series FACPs indicating the status and settings assigned to each individual detector.

Installation

All Model FDT421 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 FDT421 may be installed on the same initiating circuit with the following Siemens Model 'H'-series detectors [when used with FireFinder XLS and Desigo Fire Safety panels] —

- 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 FDT421 detectors requires a (2) two-wire circuit. In many retrofit cases, existing wiring may be used. 'T-tapping' is permitted only for Style 4 (Class B) wiring. Model FDT421 is polarity insensitive, which allows a substantial reduction in installation and debugging time.

Model FDT421 can be applied within the maximum 50-foot 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 FDT421 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.

Specifications

Model FDT421 is a plug-in, (2) two-wire thermal (heat) detector, compatible with FireFinder XLS and Desigo Fire Safety panels. Each Model FDT421 detector has microcomputer-chip technology and highly stable, solid-state electronic circuitry.

The Model FDT421 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 FDT421 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 FDT421 detector has the following *optional* feature:

- Model FDT421 provides indication of potential freezing for sprinkler systems, via a configuration for reporting a low-temperature warning of 40°F (4.4°C).

This feature is compatible with Models FC2025, FC2050 and FireFinder XLS.

Technical Data

Operating Temperature Range: +32°F (0°C) to 100°F (38°C)
[with 135°F (57°C) alarm-threshold setting]

Relative Humidity: 0-95%; non-condensing

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

Thermal Rating:

Model FDT421 provides up to seven (7) field-selectable, pre-programmed temperature settings:

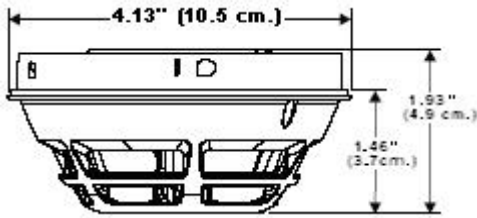
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Detector Weight:

0.32 Lbs.
(0.144 Kg.)

Mounting Diagram

Dimensions



Compatible FACP's

Model	Data Sheet Number	Description
—	6300	FireFinder XLS
FC2005	6813	50-point addressable FACP
FC2025	6815	252-point addressable FACP
FC2050	6815	504-point addressable FACP

Details for Ordering

Model	Part Number	Description
FDT421	S54320-F5-A1	Thermal (Heat) Detector
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
LK-11	500-695350	Base Locking Kit

STI-9604	—	STI Mechanical Protection Guard
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See: www.STI-USA.com for further details on ordering Model STI-9604.

In **Canada**, order:

Model	Part Number	Description
DB-11C	500-095687	Detector Mounting Base for Series 11 Detectors (@ULC Listed)

Notice: This marketing data sheet is not intended to be used for system design or installation purposes. For the most up-to-date information, refer to each product's installation instructions.