When building technology creates perfect places – that’s Ingenuity for life.

Never too cold. Never too warm.
Always safe. Always secure.

With our knowledge and technology, our products, our solutions and our services, we turn places into perfect places.
We create perfect places for their users’ needs – for every stage of life.

#CreatingPerfectPlaces
siemens.com/perfect-places

Aspirating smoke detection
Planning Tool
siemens.com/asd

### Example “clean rooms”
**Function principle**

Aspirating smoke detectors from Siemens are generally used in areas where point detectors cannot, or have a limited possibility, of detecting smoke. Clean rooms are difficult environments due to the active air sampling of the ambient air. Another benefit is that contamination due to the active air sampling can be avoided. Capillary tubes are used to draw air samples from the room that is being protected into the aspirating smoke detector.

- The detector unit can be placed in a hidden location that is easy to access.
- The sampling pipe is installed within a ceiling or on the wall, so that the air within the production area for any contamination due to the active air sampling of the ambient air can be drawn into the detector loop. Benefits include reduced planning effort and less hardware needed.
- The aspirating smoke detectors FDA221 and FDA241 can be smoothly integrated into a fire detection system without a separate smoke pipe system.

Aspirating smoke detectors are an invisibly efficient option for early and reliable fire detection.

- They are the ideal solution because they allow, for example, protection of individual electronic cabinets. As a result, potential fires can be detected early and reliably.
- Aspirating smoke detectors from Siemens can also monitor the forced air flow and the high air speed.
- The forced air flow needs to be in place before the fire detection system is put into service and maintenance.

### Example “historical architecture”
**Function principle**

In historical buildings, the challenge is present difficult environmental conditions due to all the electronics installed. They also represent valuable heritage. The challenge is to not obstruct the artistically designed, historically valuable walls and ceilings. That is why a hidden installation of the sampling pipe system needs to be chosen.

- Capillary tubes are used to draw air samples from the room that is being protected invisibly into the aspirating smoke detector.
- Air samples are continuously drawn from the areas requiring protection and evaluated in the detector chamber.
- The aspirating smoke detector can be positioned at any point of the detector loop.
- Air within the production area for any contamination due to the active air sampling can be drawn into the detector loop.
- Thanks to the innovative optical dual-wavelength detection technology, the aspirating smoke detectors FDA221 and FDA241 differentiate between smoke particles and deceptive phenomena such as dust or dirt. The detectors are so reliable that a Genuine Alarm Guarantee can be offered.

### Example “data centers”
**Function principle**

Data centers have a great fire risk potential due to high ventilation and intensive air usage. They are the ideal solution because they allow, for example, protection of individual equipment and the data it contains.

- Aspirating smoke detectors from Siemens by placing them directly onto the detector loop. Benefits include reduced planning effort and less hardware needed.
- The new aspirating smoke detectors FDA221 and FDA241 can be smoothly integrated into a fire detection system without a separate smoke pipe system.
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### Example “high storage areas”
**Function principle**

In high storage areas like warehouses, the storage infrastructure. As a result, air pipe system can be easily integrated into the storage infrastructure.

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Aspirating smoke detector FDA221
- Covers an area up to 600 m²
- Programmable sensitivity range of 0.1 – 20%/m
- One mode of operation: automatic
- Four alarm outputs

Aspirating smoke detector FDA241
- Covers an area up to 800 m²
- Programmable sensitivity range of 0.1 – 20%/m
- Three modes of operation: automatic, auto-timed, manual
- Four alarm outputs
- Programmable page functionality
- IEC 61508 SIL 2 output for displaying smoke and air flow rate

Common features
- Programmable alarm thresholds
- Setting can be programmed to either metric or imperial
- Easy- to-read alarm display
- Simple installation with integrated installation guide
- Commercial I – 20mA analog output
- General purpose input (GPIO)
- Temperature protection
- Low (dB) aspirator noise level
- Mini USB interface
- Individual product access codes

FDA221 can cover a maximum of 500 m² and FDA241 a maximum of 800 m² in a single fire zone. In rooms where there is an increased risk (rooms with ventilation systems), the size of the monitored area drops to 250 m² and with the FDA401 (170-490 m²) with the FDA221.

An intelligent classification of airborne particles
As it is known from the area to be protected using the sampling pipes, the aspirating smoke detector can be deployed in either the main sampling pipe or, when used, a danger management station. A danger management station can have a max. size of 2,000 m² and monitoring includes all types of environments.

The detector is placed where it is easy to access. It draws air through a pipe network (typically 21 mm ID, 25 mm OD). As air samples are drawn directly at the source, a potential fire can be localized quickly, achieving the needed protection according to the desired risk class. The sampling pipes can be installed below the ceiling, in a ceiling void or inside the wall, according to requirements.

The detector configuration, maintenance as well as alarm and control events can be conducted from within each cabinet or equipment rack, effects of any pressure differentials and external particle production are minimal.

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