

Issued: August 1999

## Product and Applications Description

The smoke alarm unit AP 256 with integrated bus coupling unit is designed for advance detection of fires in buildings where an special authorisation for the fire alarm systems is not required. An environmentally sensitive optical measuring technology that does not require radioactive substances in combination with a heat threshold monitor are able to early detect smoke or any significant increase in ambient temperature.

The smoke alarm unit AP 256 is installed easily as it only requires bus access to be operational.

It consists of individual modules: the base with its integrated bus coupling unit and the front piece containing the sensors which during maintenance purposes or renovating work can be removed, keeping the sensors clean.

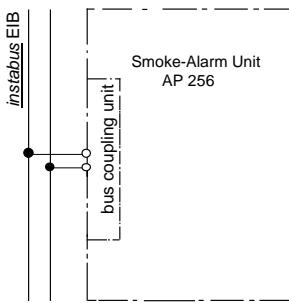
If in alarm, the smoke alarm unit AP 256 produces an alarm sound at the device itself, which can be switched on and off via the *Instabus EIB*.

The actual temperature and any smoke or heat alarms are sent on the bus. Furthermore, the state of the sensor, i.e. whether it is faulty, fouled, or removed from its base, is also sent.

## Application Programs

See Siemens product database from version F onward

## Example of Operation



## Technical Specifications

### Power supply

via bus cable

### Heat-sensitive alarm

- complies with EN 54, class 1
- monitoring of the ambient temperature via two temperature sensors
- response threshold for heat-sensitive alarm: 57 °C
- accuracy of temperature measurement: ± 1 K
- maximum resolution: 0.5 K
- response time at temperature increase of 30 degrees per second: max. 94 sec.

### Smoke detector

- complies with EN 54, part 7
- two sensitivity ranges can be specified: basic and low sensitive response threshold
- measuring range for the linear absorption coefficient (smoke density or blur): 0,6 % to 10 %
- response threshold for smoke alarm:
  - basic response threshold: 3 %
  - low sensitive response threshold: 5 %
- response time: the response time for handling smoke alarms depend on the smoke density and the specified sensitivity.
  - when set to 4 % smoke density and basic response threshold the response time is 10 s.
  - when set to 6 % smoke density and low sensitive response threshold the response time is also 10 s.
- further features:
  - steady correction compensation (reduced sensitivity e.g. to cigarette smoke)
  - fault detection

### Control elements

1 learning button (at bus coupling unit in base module): for switching between normal operating mode and addressing mode

### Display elements

- 1 red LED button (at bus coupling unit in base module): for monitoring bus voltage and displaying mode, selected with the learning button
- 1 red alarm LED at detection top: flashing if in an alarm until reset via the bus

### Connections

bus line, screwless bus connection block:  
Ø 0,6 ... 0,8 mm single core

## Physical specifications

- housing: plastic
- dimensions: Ø 116 mm, H = 64 mm
- weight: 240 g
- fire load: approx. 6250 kJ ± 10 %
- installation: screw-mount to surface

## Electrical safety

- fouling class (according to IEC 664-1): 2
- protection (according to EN 60529): IP 20
- overvoltage class (according to IEC 664-1): III
- bus: safety extra low voltage SELV DC 24 V
- device complies with EN 50 090-2-2 and IEC 664-1: 1992

## Reliability

rate of failure: 521 fit at 40 °C

## Electromagnetic compatibility

complies with EN 50081-1, EN 50082-2 and EN 50090-2-2

## Environmental specifications

- climatic conditions: EN 50090-2-2
- ambient temperature operating: - 5 ... + 45 °C
- ambient temperature non-op.: - 25 ... + 70 °C
- relative humidity (non-condensing): 5 % to 93 %

## Certification

EIB certificate

## CE norm

complies with the EMC regulations (residential and functional buildings), and low voltage regulations

## Location and Function of the Display and Operator Elements

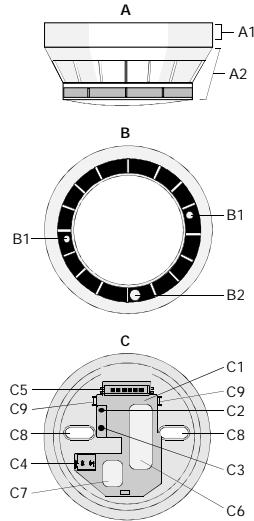


figure 1: Location and Function of the Display and Operator Elements

A: side view  
A1 pedestal with integrated bus coupling unit  
A2 detection top

B: above view  
B1 heat alarm (temperature detector)  
B2 alarm-LED (red)

C: above view after removal of the detection top  
C1 bus coupling module

C2 LED for indicating normal operating mode (LED off) and addressing mode (LED on); upon receiving the physical address it goes out automatically and the device returns to normal operating code

C3 Learning button: for switching between normal operating mode and addressing mode to receive the physical address

C4 Bus terminal

C5 Terminal socket (6-pins) to connect the detection top. It is connected automatically when the detection top is screwed upon the pedestal.

C6 Type label

C7 Label for noting the physical address

C8 Long slots to attach the device

C9 Clamps to remove the bus coupling unit module

## Installation Instructions

- The device may be used for permanent interior installations, surface mounted in dry locations.
- For optimised smoke and heat detection the smoke alarm unit must be mounted in the middle of rooms on ceilings. Smoke and heat must reach the smoke alarm unit unchecked. The minimum distance to walls and corners must be at least 15 cm. In rooms prone to steam or a lot of smoke entering such as bathrooms and kitchens, the device should be used as heat-sensitive alarm only. It is advisable to mount a smoke alarm unit in each living or sleeping area and mount at least one smoke alarm unit on each floor. In an inhabitable attic it is advisable to have one smoke alarm unit over the stairs and one in the attic.

## WARNING

- The device must be mounted and commissioned by an authorised electrician.
- The following performance checks and maintenance activities have to be done at least every six months:
  - Performance check of the smoke- and heat alarm and the alarming device released by a suitable examination device or smoke (e.g. cigarette smoke or smoking sticks) respectively heat (e.g. hair-dryer)
  - The alarm enclosure should be sucked free of remainders from outside and cleaned with a moist cloth. Do not use any solvents.
- Do not remove the integrated bus coupling unit from its base.
- The prevailing safety rules must be heeded..
- A device suspected faulty should be returned to the local Siemens office.

## Mounting and Wiring

### General description

The smoke alarm unit is a modular construction, i.e. it consists of the pedestal with the integrated bus coupling unit and the detection top which can be removed to mount/dismount the smoke alarm unit and for example for maintenance or renovating activities.

### Mounting the smoke alarm unit

- Remove the detection top from the pedestal by holding the pedestal with one hand and turning the detection top anti-clockwise with the other hand (Bayonet lock).
- Appropriate introductions which only have to be pushed through are provided for the bus line and the fastening screws.
- Insert the bus line with the sheathing through the designated introduction into the pedestal of the smoke alarm unit.
- Fasten the smoke alarm unit with two screws 4 mm Ø on the ceiling.
- Pull the bus connection block from the bus coupling unit module, connect the bus line and stick the bus connection block to the bus coupling unit module back again (see the following detailed description).
- Screw the detection top onto the pedestal back again.

### Unplugging the bus connection block (figure 2)

- The bus connection block (D1) is located in the bus coupling unit module (D2). It consists of two parts (D1.2 and D1.3) with 4 clamping terminals each. Take care that both examination sockets are not damaged neither by the bus conductor (accidental plugging attempt) nor by the screw-driver (e.g. when trying to remove the bus connection block).
- Insert the screw-driver carefully into the wire introduction slot of the grey part of the bus connection block (D1.3) and pull the bus connection block (D1) down from the bus coupling unit module (D2). When pulling down the red part of the bus connection block the grey part gets stuck.

**Note:** Don't try to remove the bus connection block from the bottom side! There is a risk of shorting-out the device!

### Connecting the bus connection block (figure 2)

- Slip the bus connection block onto the guide slot of the bus coupling unit module (D2) and
- Press the bus connection block (D1) down to the stop

### Connecting the bus cable (figure 2)

- The bus connection block (D1) can be used with single core conductors Ø 0,6 ... 0,8 mm.
- Remove approx. 5 mm of insulation (D1.4) and plug it into the terminal (D1) (red = +, grey = -).

### Disconnecting bus cable (figure 2)

Unplug the bus connection block (D1) and remove the bus cable conductor (D1.4) while simultaneously wiggling it

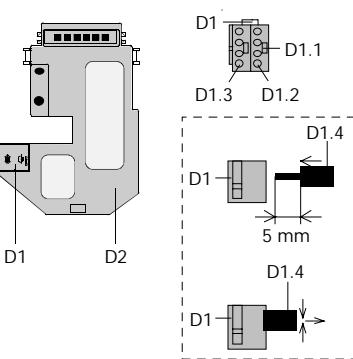


figure 2: connection