# Product information

Aspirating smoke detectors from Securiton are among the most reliable early warning systems for fires. The SecuriRAS ASD (aspirating smoke detector) range impresses with its unrivalled performance level. Developed in Switzerland and manufactured in Germany, the detectors are particularly reliable and robust.

# SecuriRAS ASD 535/532/531

## Aspirating smoke detectors (ASD)

### Basic design and function of an aspirating smoke detector

An ASD consists of one or two independent sampling tubes with sampling apertures, and with a highly sensitive smoke sensor in each case. Airflow monitoring ensures that the sampling tubes are constantly checked for pipe breakage and the sampling apertures monitored for soiling. A high-performance fan sucks in air from the room or facility being monitored through the sampling tube into the evaluation unit. There the air is continuously evaluated by the smoke sensors. The display and control panel of the evaluation unit indicates the smoke concentration of the sampled air, as well as other alarm, fault and status messages. Any increase in smoke concentration levels is detected very early on. Pre-signals and one or two main alarms can be programmed, and signalled via potential-free relay contacts or directly to the SecuriLine loop.

### Overview of range

The SecuriRAS ASD range consists of three types:

- The ASD 535 in 4 versions (1 or 2 channels, with/without smoke level indicator) is the universal device with outstanding performance characteristics for medium-sized and large monitoring areas. Its ambient temperature range reaches as low as –30°C, making it perfect for deep-freeze warehouses.
- The ASD 532 is the single-channel device for medium-sized monitoring areas. It has the same technical specifications as the ASD 535, but with just one sampling tube and a more compact fan. Configuration, programming, maintenance and networking of the system are the same as for the ASD 535 and just as simple.
- The ASD 531 detector is tailor-made for small monitoring areas and for customers who would like a device that is even easier to use but still want an extensive range of accessories.

### Highly sensitive smoke sensor

The SSD 53x smoke sensor was specially developed for the SecuriRAS ASD and is the result of comprehensive research. A high-power LED combined with an LVSC (large-volume smoke chamber) sampling chamber results in unparalleled adjustable sensitivity with low aerodynamic resistance and the utmost resistance to soiling. These features ensure long system service life and durability. The patented lint filter helps suppress one-off disturbances.

### PC tools for configuration and for calculating the sampling tube

Sampling tubes for all systems can be accurately calculated, optimised and documented with the VdS-tested ASD PipeFlow PC program. This offers the possibility of asymmetrical and therefore cheaper pipe layouts. ASD Config is the tool for commissioning and maintaining the ASD 535 and 532. The «Config over Line» function means this can be used without additional networking, including from the fire alarm control panel (FACP). And RS 485 networking allows an entire ASD array (ASD 535 and 532) to be be visualised and operated at the same time.

### Commissioning

The ASD 535 and 532 can also be commissioned with «Easy Config» – so without a PC. With this method, practically the same functions are available as with the ASD Config PC tool. The ASD 531 also uses a simplified process known as «BasiConfig». This allows somebody to commission an ASD 531 with almost no training. All that is needed is the response grade required, and then it is a case of setting the number of sampling apertures and calibrating airflow measurement. Everything else is taken care of by the detector itself.

### Bi-directional integration and Config over Line

All ASDs can be ideally integrated into the SecuriFire fire detection system with the optional

- Approved according to EN 54-20 classes A, B and C, plus UL and FM
- VdS-tested calculation software ASD PipeFlow allows for an efficient asymmetrical pipe layout
- Sensitivity can be set from 0.002–10 %/m
- Highly sensitive yet robust smoke detection thanks to large-volume smoke chamber (LVSC) with measurement resolution < 0.001%/m
- Complete integration into the SecuriLine loop including Config over Line
- Insensitive to dirt particles thanks to patented particle suppression
- Automatic soiling compensation and autolearning function
- Low noise level, compliant with ISO 11690-1
- Up to 5 alarm levels per detector (3 pre-signals and 1 or 2 alarms)

SecuriLine XLM 35 interface. It is then no problem to display and operate the day/night sensitivity control, for example, from the fire alarm control panel. Thanks to «Config over Line», the ASD 535 and 532 can even be configured from the FACP.

**SECURITON**

**SecuriRAS ASD 535**

265 mm
148 mm
348 mm
348 mm
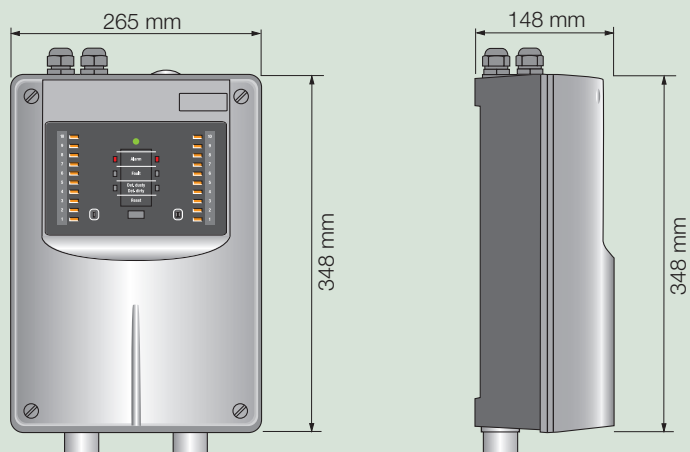
| Typical application | ASD 535 | ASD 532 | ASD 531 |
|---|---|---|---|
| Area surveillance | | | |
| Warehouses, high-rack storage facilities | ●● | ● | O |
| Deep-freeze warehouses, explosion-hazard areas | ●● | × | × |
| Explosion-hazard areas | ●● | × | × |
| Lift shafts | O | ●● | ●● |
| Data centres | ●● | ●● | ● |
| Clean rooms, laboratory and research centres | ●● | ●● | ●● |
| Dropped ceilings and raised floors | ●● | ● | ● |
| Cable and energy tunnels | ●● | ● | ● |
| Transformer rooms | ● | ●● | O |
| Archive rooms | ●● | ● | ● |
| Museums, galleries | ●● | ● | ● |
| Theatres and cinemas | ●● | ● | ● |
| Production facilities | ●● | ●● | O |
| Recycling plants | ●● | ●● | O |
| Rail wagons | ● | ●● | O |
| Airports, large halls, underground car parks | ●● | ● | O |
| Electronic measurement rooms | ●● | ● | ● |
| Ventilation ducts | ● | ● | ●● |
| Invisible applications | | | |
| Prisons | ● | ●● | ● |
| Historical buildings | ●● | ● | O |
| Architectural considerations, flush-mounted sampling tubes | ●● | ● | O |
| Property surveillance | | | |
| EDP racks, telecomms facilities, CNC control systems | ● | ●● | ●● |
| High- and low-voltage distribution cabinets | ● | ●● | ●● |
| Display cases | ● | ●● | ●● |

| Accessory materials | | ASD 535 | ASD 532 | ASD 531 |
|---|---|---|---|---|
| Sampling tubes | | Full range in PVC, ABS, stainless steel, copper with d = 25 mm or ¾" (27 mm) | | |
| Filter box | Small, large | ● | ● | ● |
| | Extra large | ● | ● | × |
| Dust trap box | | ● | ● | ● |
| Capillary sampling points | 6/4 mm | ● | ● | × |
| Flexible tubes/ducts through ceilings, Water separator | | ● | ● | ● |
| Heated sampling fittings | Deep-freeze warehouses | ● | × | × |
| Detonation flame arrester | For expl.-hazard zones | ● | O | × |
| Connecting flange | For ventilation ducts | ● | ● | ● |

●● = very suitable, ● = suitable, O = fairly suitable, × = not suitable

**ASD 535 aspirating smoke detector range**

| | |
|---|---|
| ASD 535-1/2 | Aspirating smoke detector for 1 or 2 SSD 535 smoke sensors without smoke level indicator |
| ASD 535-3/4 | Aspirating smoke detector for 1 or 2 SSD 535 smoke sensors with smoke level indicator |
| SSD 535-3 | Highly sensitive smoke sensor for ASD 535 |

**ASD 532 aspirating smoke detector range**

| | |
|---|---|
| ASD 532 | Aspirating smoke detector for 1 SSD 532 smoke sensor with smoke level indicator |
| SSD 532-3 | Highly sensitive smoke sensor for ASD 532 |

**SecuriRAS ASD 532/531**

195 mm · 290 mm  195 mm · 290 mm  140 mm · 290 mm
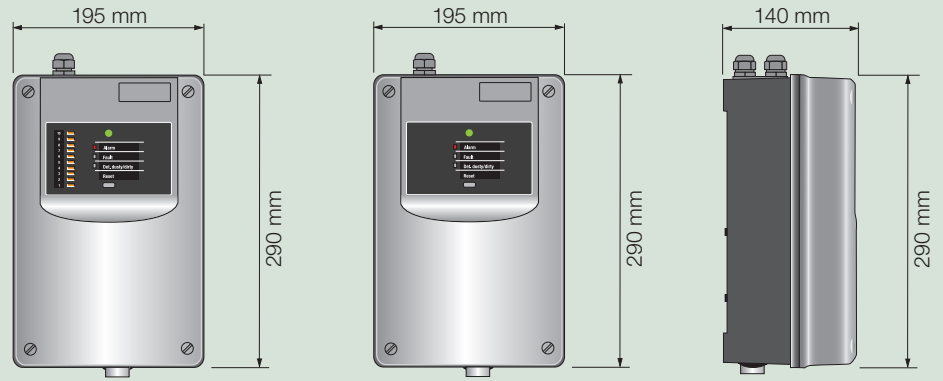
## ASD 531 aspirating smoke detector range

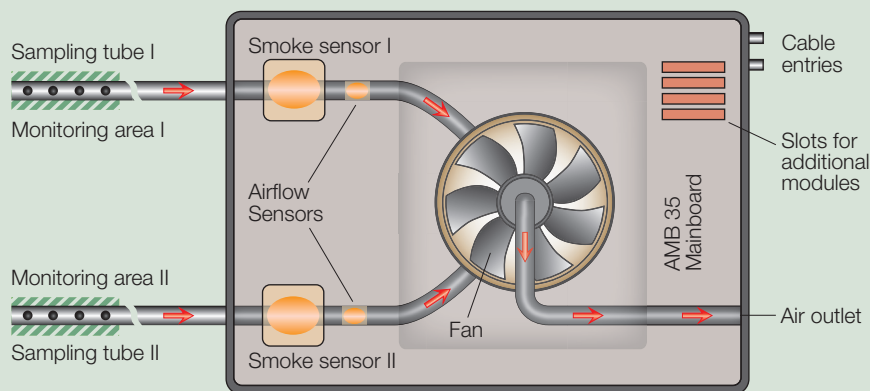| | |
|---|---|
| ASD 531 | Aspirating smoke detector including 1 integrated highly sensitive smoke sensor SSD 31, without smoke level indicator |

## Optional modules range

| | |
|---|---|
| RIM 35 | Optional module with 5 additional relays (ASD 535) |
| RIM 36 | Optional module with 5 additional relays (ASD 531/532) |
| MCM 35 | Optional SD memory card module connection, with card (ASD 535) |
| SD card | Industrial SD card (ASD 531/532) |
| XLM 35 | Optional module for connection to SecuriLine eXtended |
| SIM 35/SMM 535 | RS 485 networking module/RS 485 master module (ASD 532/535) |
| UMS 35 | Universal module support for mounting line modules |
| ASD PipeFlow | PC tool for drawing and calculating the sampling pipe |
| ASD Config | PC tool for commissioning and maintenance (ASD 532/535) |

## Technical data

| | | ASD 535 | ASD 532 | ASD 531 |
|---|---|---|---|---|
| Supply voltage range | EN 54 | 10.5–30 VDC | 14.0–30 VDC | 14.0–30 VDC |
| | FM/UL | 12.4–27 VDC | 16.4–27 VDC | 16.4–27 VDC |
| Power consumption | Typical for 24 VDC | 260–290 mA | 115 mA | 75 mA |
| Sampling tubes/smoke sensors | Quantity | 1 or 2 | 1 | 1 |
| Alarm sensitivity | Alarm | 0.02–10%/m (0.00087–0.457 dB/m) | | 0.02–10%/m |
| | Pre-signal | From 0.002%/m (0.0000869 dB/m) | | From 0.006%/m |
| Alarm levels | | 5 (3 pre-signals, alarm, alarm 2) adjustable pre-signals 10–90% | | 4 (3 pre-signals fixed in adv. 30/50/70%) |
| Autolearning, day/night switching | | Configurable | Configurable | Not available |
| Relays | Quantity 1-channel vers. | 3 (1 alarm, 1 fault, 1 free) | 2 (1 alarm, 1 fault) | 2 (1 alarm, 1 fault) |
| | 2-channel vers. | 3 (al. I & al. II, 1 fault) | (use RIM 36 for pre-signals) | |
| | Contact load | 50 VDC/1 A (UL 30 VDC) | | |
| Interfaces | O.C. outputs | See relays | See relays | See relays |
| | PC tool | USB | Ethernet | – |
| | Network | RS 485 | RS 485, Ethernet | – |
| | Inputs | Reset, day/night | Reset, day/night | Reset |
| Connection to SecuriFire FACP | Functions | Alarm, alarm 2, pre-signal 1–3, fault, reset | | Alarm, pre-signal 1–3, fault, reset |
| | Optional module XLM 35 | Config over Line, analogue values | | |
| Optional modules | Quantity | 4 | 2 | 2 |
| | Types | 2/1 RIM 35, SIM 35, SLM/XLM 35, MCM 35 | 2/1 RIM 36 (only RIM 36) XLM 35, SIM 35 | RIM 36, XLM 35 |
| Standards/approvals | EN 54-20 | VdS G 208 154 | VdS G 215 101 | VdS G 215 100 |
| | EN 54-27 (ventil. ducts) | Yes | Yes | Yes |
| | UL 268, FM 3230 | Yes, Yes | Yes, Yes | Yes, Yes |
| | Other | ActivFire, CCCF, ISO 7240-20, GHOST | ActivFire, CCCF, ISO 7240-20, GHOST | ActivFire, CCCF, ISO 7240-20, GHOST |
| | Compliance | EMC, CPR, RoHS | EMC, CPR, RoHS | EMC, CPR, RoHS |
| Number of sampling apertures (with ASD PipeFlow) | EN 54-20 Class A | 2 × 18 | 8 | 6 |
| | EN 54-20 Class B | 2 × 56 | 12 | 8 |
| | EN 54-20 Class C | 2 × 120 | 16 | 12 |
| | NFPA 72 (UL/FM) | 2 × 120 | 16 | 12 |

**Operating principle of an ASD**
(example based on ASD 535)

We reserve the rights to implement technical changes and modify delivery options.



Labels in diagram: Sampling tube I, Monitoring area I, Airflow Sensors, Monitoring area II, Sampling tube II, Smoke sensor I, Smoke sensor II, Fan, AMB 35 Mainboard, Cable entries, Slots for additional modules, Air outlet

Certification logos: CCC, ACTIVFIRE CERTIFIED, VdS, UL, FM APPROVED, CE

| Technical data | | ASD 535 | ASD 532 | ASD 531 |
|---|---|---|---|---|
| Monitoring area | Max. area | 5760 m² | 1280 m² | 720 m² |
| System limits as per EN 54-20 Class C | Max. quantity Sampling apertures | 2 × 120 | 16 | 12 |
| | Max. length to last sampling point | 2 × 110 m | 70 m | 40 m |
| | Max. overall length for all sampling tubes | 2 × 300 m | 120 m | 75 m |
| System limits without conformity to standards | Max. overall length for all sampling tubes | 2 × 400 m | 120 m | 75 m |
| Configuration | Close operation | EasyConfig | EasyConfig | BasiConfig |
| | PC tool | ASD Config | ASD Config | – |
| Calculation of sampling tubes for all three types of aspirating smoke detectors | ASD PipeFlow | • Full support for all product versions • Asymmetrical configurations • Genuine simulation, no table values | | |
| Fan/sampling system | Suction pressure | > 400 Pa | > 100 Pa | > 30 Pa |
| | Service life (MTTF) | > 65,000 h (at 40 °C) | > 80,000 h (at 40 °C) | > 80,000 h (at 40 °C) |
| | Performance levels | 5 | 3 | 1 |
| | Noise level (1 m distance) | 34 dB (A) (fan level 1) | 25 dB (A) (fan level 1) | 25 dB (A) |
| | Soundproof housing | < 20 dB (A) | < 20 dB (A) | < 20 dB (A) |
| Airflow monitoring | As per EN 54-20 | 1 air flow sensor p/ch. (therm. anemometer) | 1 air flow sensor (therm. anemometer) | 1 air flow sensor (therm. anemometer) |
| Housing | EN 60529 prot. category | IP 54 | IP 54 | IP 54 |
| | Dimensions (W × H × D) | 265 × 348 × 148 mm | 195 × 290 × 140 mm | 195 × 290 × 140 mm |
| | Cover, grey | RAL 280 70 05 | RAL 280 70 05 | RAL 280 70 05 |
| | Base, anthracite violet | RAL 300 20 05 | RAL 300 20 05 | RAL 300 20 05 |
| | Material | ABS blend, UL 94-V0 | ABS blend, UL 94-V0 | ABS blend, UL 94-V0 |
| | Weight (approx.) | 3850 g | 1950 g | 1950 g |
| | Cable entries | 4 × M20, 1 × M25 | 3 × M20, 1 × M25 | 3 × M20, 1 × M25 |
| Packaging | Cardboard (W × H × D) | 437 × 281 × 182 mm | 372 × 220 × 172 mm | 372 × 220 × 172 mm |
| Operating temperature/humidity | Evaluation unit | −30 – +60 °C/95% RH (amb. air max. +40 °C) | −20 – +60 °C/95% RH (amb. air max. +40 °C) | −10 – +55 °C/95% RH (amb. air max. 40 °C) |
| Display and operation | Generally, per channel | 1 «power» LED green, 1 red «alarm» LED, 1 yellow «fault» LED, 1 yellow soiling LED, 1 reset key | | |
| | Add. 10 LEDs (yellow) for smoke level indicator | ASD 535-3 and -4 (per channel) | Yes | Not available |
| Event memory/analogue values | On board | 430 events | 1000 events | 1000 events |
| | With SD card | Up to 1 year (with MCM 35) | Up to 1 year on-board option | Up to 1 year on-board option |
| Related documents | Data sheet | T 131 193 | T 140 422 | T 140 417 |
| | Tech. manual | T 131 192 | T 140 421 | T 140 416 |
| | Sampling guide | T 131 194 | T 131 194 | T 131 194 |

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