

# Aspirating Smoke Detector

## Product information

**Aspirating smoke detectors from Securiton are among the most reliable early warning systems for fires. The SecuriSmoke 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.**



# SecuriSmoke ASD 535/533/532/531

## 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, each with a highly sensitive smoke sensor. 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, where 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 SecuriSmoke ASD range consists of four types:

- The ASD 535 in six versions (one or two channels, with/without smoke level indicator), as heavy duty version, is the universal device with outstanding performance characteristics for medium-sized and large monitoring areas. Its ambient temperature range reaches as low as  $-30^{\circ}\text{C}$ , making it perfect for deep-freeze warehouses.
- The ASD 533 is a single-channel device for large monitoring areas. It is the same as the ASD 535, but with limited performance features. With a few exceptions, all accessory parts can be used.
- 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 SecuriSmoke 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 durability and a long system life. The patented lint filter helps suppress one-off disturbances.

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

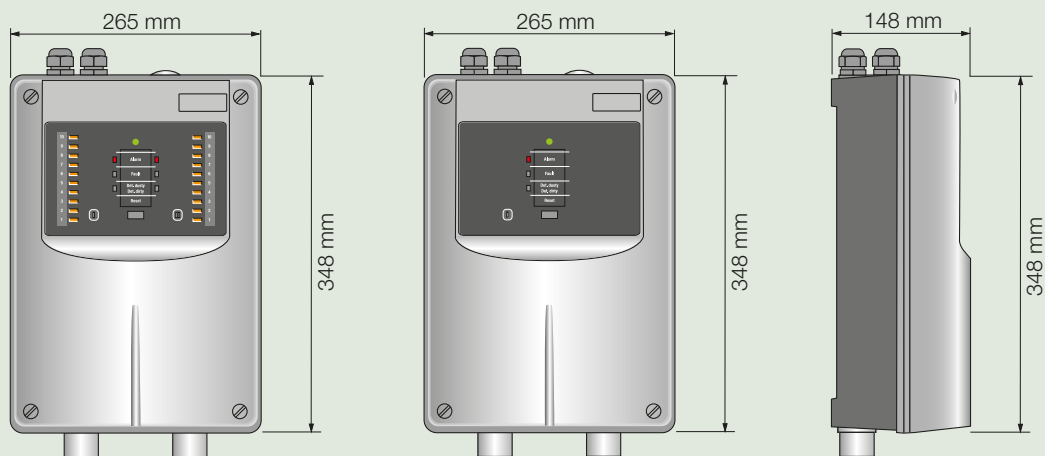
Sampling tubes for all systems can be accurately calculated, optimised and documented with the VdS-tested ASD PipeFlow PC program. This offers the possibility of asymmetrical and therefore cheaper pipe layouts. ASD Config is the tool for commissioning and maintaining the ASD 535, 533 and 532. The «Config 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, 533 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.

- Approved according to EN 54-20 classes A, B and C, plus UL (268 7th Edition) 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  $<0.001\text{ %/m}$
- 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)
- Heavy duty version of the ASD 535 for extreme environments with:
  - IP 66 protection
  - Coated printed circuit boards
  - 8 kV surge protection

**SecuriSmoke ASD 535/533**



Typical application	ASD 535	ASD 533	ASD 532	ASD 531
<b>Area surveillance</b>				
Warehouses, high-rack storage facilities	●●	●●	●	○
Deep-freeze warehouses	●●	×	×	×
Explosion-hazard areas	●●	×	×	×
Lift shafts	○	●●	●●	●●
Data centres	●●	●	●●	●
Clean rooms, laboratory and research centres	●●	●●	●●	●●
Dropped ceilings and raised floors	●●	●●	●	●
Cable and energy tunnels	●●	●●	●	●
Transformer rooms	●	●●	●●	○
Archive rooms	●●	●●	●	●
Museums, galleries, theatres and cinemas	●●	●●	●	●
Production facilities	●●	●●	●●	○
Recycling plants	●●	●	●●	○
Airports, large halls, underground car parks	●●	●	●	○
Electronic measurement rooms	●●	●●	●	●
Ventilation ducts	●	×	●	×
<b>Hidden applications</b>				
Prisons	●	●●	●●	●
Historical buildings	●●	●●	●	○
Flush-mounted sampling tubes	●●	●	●	○
<b>Property surveillance</b>				
EDP racks, telecommunications facilities	●	●	●●	●●
CNC control systems	●	●	●●	●●
High- and low-voltage distribution cabinets	●	●	●●	●●

Accessory materials	ASD 535	ASD 533	ASD 532	ASD 531
Sampling tubes	Full range in PVC, ABS, stainless steel, copper with d = 25 mm or ¾" (27 mm)			
Dust filter	●	●	●	●
Dust trap box, water separator	●	●	●	●
Capillary sampling points, 6/4 mm	●	●	●	×
Heated sampling fittings, deep-freeze warehouses	●	×	×	×
Detonation flame arrester for expl.-hazard zones	●	×	×	×
Surge protection	●	×	×	×

●● = very suitable, ● = suitable, ○ = 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
ASD 535-3/4 HD	Aspirating Smoke Detector for 1 or 2 SSD 535 smoke sensors, heavy duty version
SSD 535-3	Highly sensitive smoke sensor for ASD 535
SSD 535-3 CP	Highly sensitive smoke sensor for ASD 535, heavy duty version

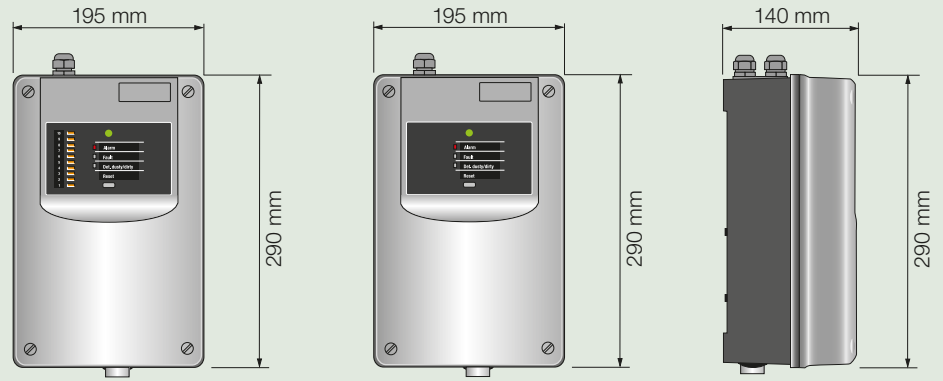
**ASD 533 aspirating smoke detector range**

ASD 533-1	Aspirating smoke detector including 1 integrated highly sensitive smoke sensor SSD 533 without smoke level indicator
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**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

## SecuriSmoke ASD 532/531



### ASD 531 aspirating smoke detector range

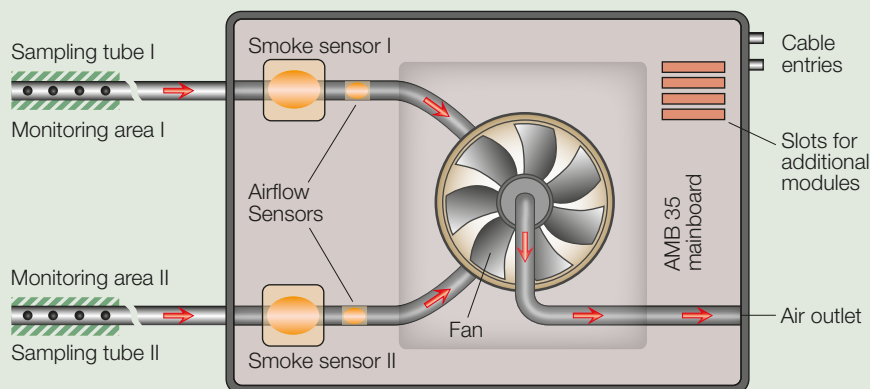
ASD 531 Aspirating smoke detector including 1 integrated highly sensitive smoke sensor SSD 31, without smoke level indicator

#### Optional modules range

RIM 35	Optional module with 5 additional relays (ASD 535/533)
RIM 36	Optional module with 5 additional relays (ASD 532/531)
MCM 35	Optional SD memory card module connection, with card (ASD 535/533)
SD card	Industrial SD card (ASD 532/531)
XLM 35	Optional module for connection to SecuriLine eXtended
SIM 35/SMM 535	RS 485 networking module/RS 485 master module (ASD 535/532)
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 535/533/532)

Technical data		ASD 535	ASD 533	ASD 532	ASD 531
Supply voltage range	EN 54	10.5–30 VDC	10.5–30 VDC	14.0–30 VDC	14.0–30 VDC
	FM/UL	12.4–27 VDC	12.4–27 VDC	16.4–27 VDC	16.4–27 VDC
Power consumption	Typical for 24 VDC	260–290 mA	210 mA	115 mA	75 mA
Sampling tubes/ smoke sensors	Quantity	1 or 2	1	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	Configurable	Not available
Relays	Quantity 1-channel vers.	3 (1 alarm, 1 fault, 1 free)	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	50VDC/1 A (UL30VDC)			
Interfaces	O.C. outputs	See relays	See relays	See relays	See relays
	PC tool	USB	USB	Ethernet	–
	Network	RS 485	–	RS 485, Ethernet	–
	Inputs	Reset, day/night	Reset, day/night	Reset, day/night	Reset
Connection to SecuriFire FACP	Functions	Alarm, alarm 2, pre-signal 1–3, fault, reset			
	Optional module XLM 35	Config over Line, analogue values			
Optional modules	Quantity	4	4	2	2
	Types	2/1 RIM 35, SIM 35, SLM/XLM 35, MCM 35	2/1 RIM 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 208154	VdS G 212163	VdS G 215101	VdS G 215100
	EN 54-27 (ventil. ducts)	Yes	No	Yes	No
	UL, FM	Yes, Yes	Yes, Yes	Yes, Yes	Yes, Yes
	Other	ActivFire, CCCF, ISO 7240-20, GOST	ActivFire, CCCF, ISO 7240-20, GOST	ActivFire, CCCF, ISO 7240-20, GOST	ActivFire, CCCF, ISO 7240-20, GOST
	Compliance	EMC, CPR, RoHS, EAC	EMC, CPR, RoHS, EAC	EMC, CPR, RoHS, EAC	EMC, CPR, RoHS, EAC
Number of samplings apertures (with ASD PipeFlow)	EN 54-20 Class A	2 × 18	16	8	6
	EN 54-20 Class B	2 × 56	50	12	8
	EN 54-20 Class C	2 × 120	50	16	12

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



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



Technical data		ASD 535	ASD 533	ASD 532	ASD 531
Monitoring area	Max. area	5760 m <sup>2</sup>	1920 m <sup>2</sup>	1280 m <sup>2</sup>	720 m <sup>2</sup>
System limits as per EN 54-20 Class C	Max. quantity	2 x 120	50	16	12
	Max. length to last sampling point	2 x 110 m	80 m	70 m	40 m
	Max. overall length of all sampling tubes	2 x 300 m	200 m	120 m	75 m
System limits without conformity to standards	Max. overall length of all sampling tubes	2 x 400 m	200 m	120 m	75 m
Configuration	Close operation PC tool	EasyConfig ASD Config	EasyConfig ASD Config	EasyConfig ASD Config	BasiConfig -
Calculation of sampling tubes for all four types of aspirating smoke detectors	ASD PipeFlow	<ul style="list-style-type: none"> <li>• Full support for all product versions</li> <li>• Asymmetrical configurations</li> <li>• Genuine simulation, no table values</li> </ul>		<ul style="list-style-type: none"> <li>• Calculation according EN-54-20 (Class A, B, C) or NFPA 72</li> </ul>	
Fan/sampling system	Suction pressure	> 400 Pa	> 400 Pa	> 100 Pa	> 30 Pa
	Service life (MTTF)	> 65,000 h (at 40 °C)	> 65,000 h (at 40 °C)	> 80,000 h (at 40 °C)	> 80,000 h (at 40 °C)
	Performance levels	5	1	3	1
	Noise level (1 m distance)	34 dB (A) (fan level 1)	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)	< 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)	1 air flow sensor (therm. anemometer)
Housing	EN 60529 prot. class	IP 54 (IP 66 HD version)	IP 54	IP 54	IP 54
	Dimensions (W x H x D)	265 x 348 x 148 mm	265 x 348 x 148 mm	195 x 290 x 140 mm	195 x 290 x 140 mm
	Cover, grey	RAL 280 70 05	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	RAL 300 20 05
	Material	ABS blend, UL 94-V0	ABS blend, UL 94-V0	ABS blend, UL 94-V0	ABS blend, UL 94-V0
	Weight (approx.)	3850 g	3850 g	1950 g	1950 g
	Cable entries	4 x M20, 1 x M25	4 x M20, 1 x M25	3 x M20, 1 x M25	3 x M20, 1 x M25
Packaging	Cardboard (W x H x D)	437 x 281 x 182 mm	437 x 281 x 182 mm	372 x 220 x 172 mm	372 x 220 x 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)	-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 green «power» LED, 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)	Not available	Yes	Not available
Event memory/analogue values	On board	430 events	1000 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	Up to 1 year on-board option
Related documents	Data sheet	T 131 193	T 140 288	T 140 422	T 140 417
	Tech. manual	T 131 192	T 140 287	T 140 421	T 140 416
	Sampling tube	T 131 194	T 131 194	T 131 194	T 131 194

# CERTIFICATE OF COMPLIANCE

**Certificate Number** S25264  
**Report Reference** S25264-20140205  
**Issue Date** 2020-SEPTEMBER-16

**Issued to:** SECURITON AG  
Alpenstrasse 20  
CH-3052 Zollikofen SWITZERLAND

**This certificate confirms that  
representative samples of**

SMOKE DETECTORS FOR SPECIAL APPLICATIONS;  
SMOKE DETECTORS FOR FIRE ALARM SYSTEMS  
USL, CNL - Smoke-automatic fire detector, air sampling  
type, Models ASD 533-1, ASD 535-1, ASD 535-2, ASD  
535-3, ASD 535-3HD, ASD 535-4, ASD 535-4HD, ASD  
535A-3CN, ASD 535A-3HD CN, ASD 535A-4CN, and ASD  
535A-4HD CN. (continued on next page).

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

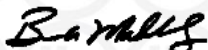
**Standard(s) for Safety:** ANSI/UL 268, Smoke Detectors for Fire Alarm Systems  
ULC-S529, Smoke Detectors for Fire Alarm Systems  
ANSI/UL 268A, Smoke Detectors for Duct Application

**Additional Information:** See the UL Online Certifications Directory at  
<https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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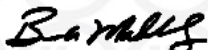


# CERTIFICATE OF COMPLIANCE

**Certificate Number** S25264  
**Report Reference** S25264-20140205  
**Issue Date** 2020-SEPTEMBER-16

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

When installed in the United States, these units must be used with a UL 1481 Listed power supply and a UL 864 Listed fire alarm control unit. When installed in Canada, these units must be used with a ULC-S527 Listed power supply and fire alarm control unit.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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# Certificate of Compliance

## FIRE PROTECTION EQUIPMENT

This certificate is issued for the following equipment:

ASD 535-1, ASD 535-2, ASD-535-3, ASD535-4, ASD 535-3 China and ASD 535-4 China Aspirating Type Smoke Detector

*Approval Guide* Listing: Category:

Electrical Signaling, Alarm Signal Initiating Devices Fire Detection, Smoke-Actuated, Fire Detectors-Smoke  
Electrical Signaling, Alarm Signal Initiating Devices Fire Detection, Smoke-Actuated, Very Early Warning Fire Detection (VEWFD) Systems  
Electrical Signaling, Alarm Signal Initiating Devices Fire Detection, Smoke-Actuated, Protection of Refrigerated Spaces

Securiton AG  
Alpenstrasse 20  
Zollikofen, CH 3052  
Switzerland

This certifies that the equipment described has been found to comply with the applicable requirements, as stated in the Approval Report(s), of the following FM Approval Standards and other documents:

<i>Approval Standards</i>		<i>Other Standards</i>	
<i>Class Number</i>	<i>Date</i>	<i>Organization, Designation</i>	<i>Date</i>
3230	2010		

Original Approval Job Identification:3035294

Approval Granted: 13 November, 2004

Related Report: 3045947, 3035994

Subsequent Revisions: None

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

A handwritten signature in dark ink, appearing to read 'J.E. Marquedant', is written over a horizontal line.

J.E. Marquedant  
VP, Manager of Electrical Systems  
FM Approvals  
1151 Boston-Providence Turnpike,  
Norwood MA, 02062 USA

29 December 2017

\_\_\_\_\_  
Date



*Member of the FM Global Group*





## Certificate of Compliance

ASD 535-1, ASD 535-2, ASD-535-3, ASD535-4, ASD 535-3 China and ASD 535-4 China Aspirating Type Smoke Detector firmware version V010803. For use with compatible Approved fire alarm controls providing separate circuits for power and the standard relay contacts on the terminal board of the detector or the analogue connection via a SLM 35/XLM 35 interface to an Approved, compatible panel. The model ASD 535 is a self contained unit which houses one or two smoke detector(s), aspirator and controls. The device is rated 10.5 – 30 Vdc, 820mA maximum. Operating temperature range of -22°F (-30°C) to 120°F (49°C), Smoke detector options are: SSD 535-1 sensitivity corresponds to 0.15%/ft (0.5%/m), SSD 535-2 sensitivity corresponds to 0.03%/ft (0.1%/m), and 535-3 sensitivity corresponds to 0.006%/ft (0.02%/m). All options can be set to a lowest sensitivity of 3.15%/ft (10%/m). The model ASD 535 detector must be connected to sampling pipe, not to exceed 200m (660ft) from the most remote sampling hole. The available networks are described in the manual or optional software may be used. ASD Pipeflow Software version 2.4.0 for calculating sampling pipe networks and ASD Config PC software for commissioning and maintenance are Approved as options for use with the ASD 535s. MCM 35 Optional SD memory card module connection, with card, RIM 35 Optional relay print module with 5 relays and Serial Interface Module SIM 35 are Approved as options for use the ASD 535s. The required 24Vdc primary power and 24 hour standby power for the model ASD 535 detector must be obtained locally from a means suitable for NFPA 72 applications.



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