



Deep Freeze / Cold Stores

ASD 535 Application Report



For your safety

Content

- **Risk, Cause & Damage**
- **Challenges**
- **Application Scenarios**
- **Benefits**

Risk, Cause & Damage

- Packaging materials (highly combustible)
- Conveyor belts and forklifts

Cold Stores are part of the production and delivery process with ***Business Interruption*** being the main consequence.



Fire at FRIGO

Source of ignition: Sparks of welding works developed to a full blown fire during weekend.

Damage:

4'300 tons of meat

Total loss of EUR 68 m

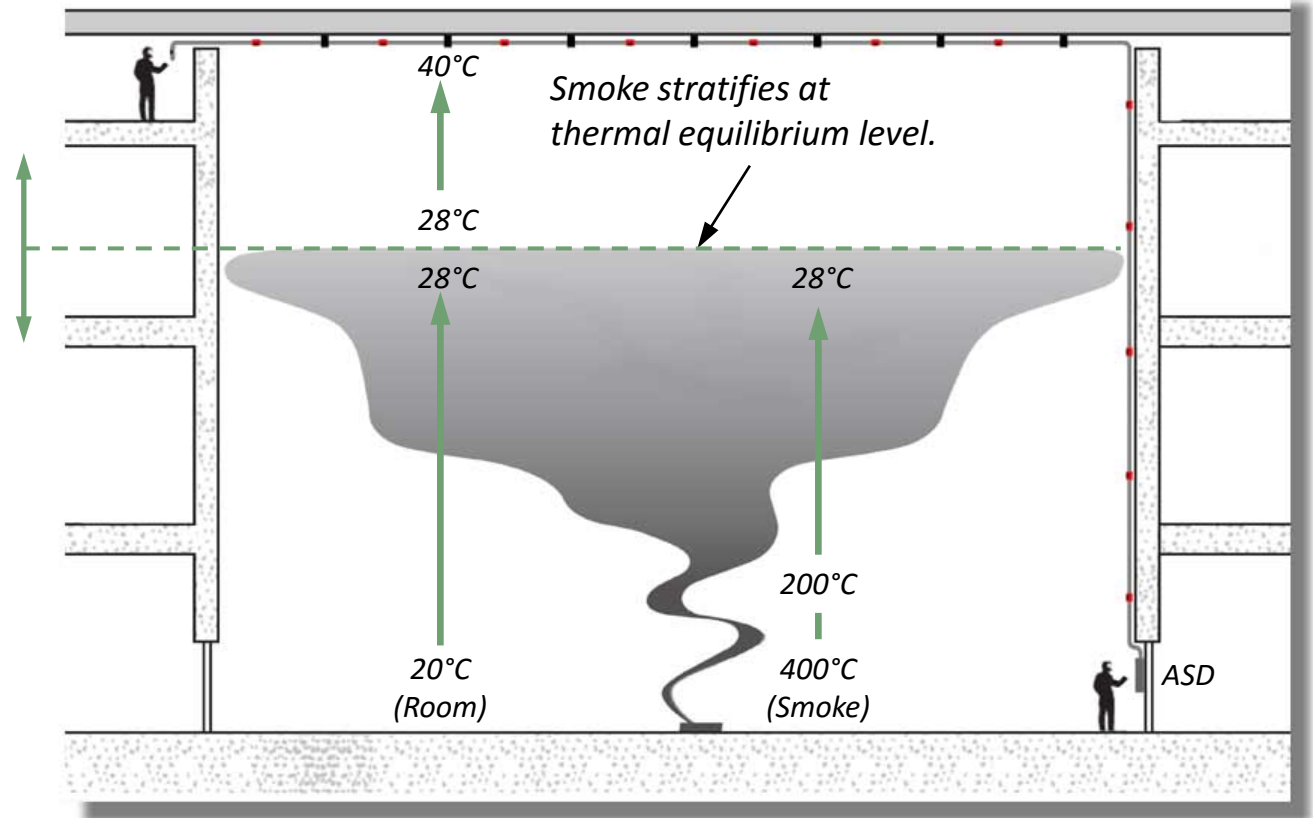
EUR 500k for fire fighting

2 Weeks to extinguish



Report: http://www.bell.ch/en/desktopdefault.aspx/tabid-115/161_read-2577/161_page-2/
Movies: <http://youtube.com/watch?v=T7V5uj3CjwM>
<http://vimeo.com/10828686>

The smaller the fire, the lower the level of stratification.



Large Open Spaces

- Stratification
- Serviceability



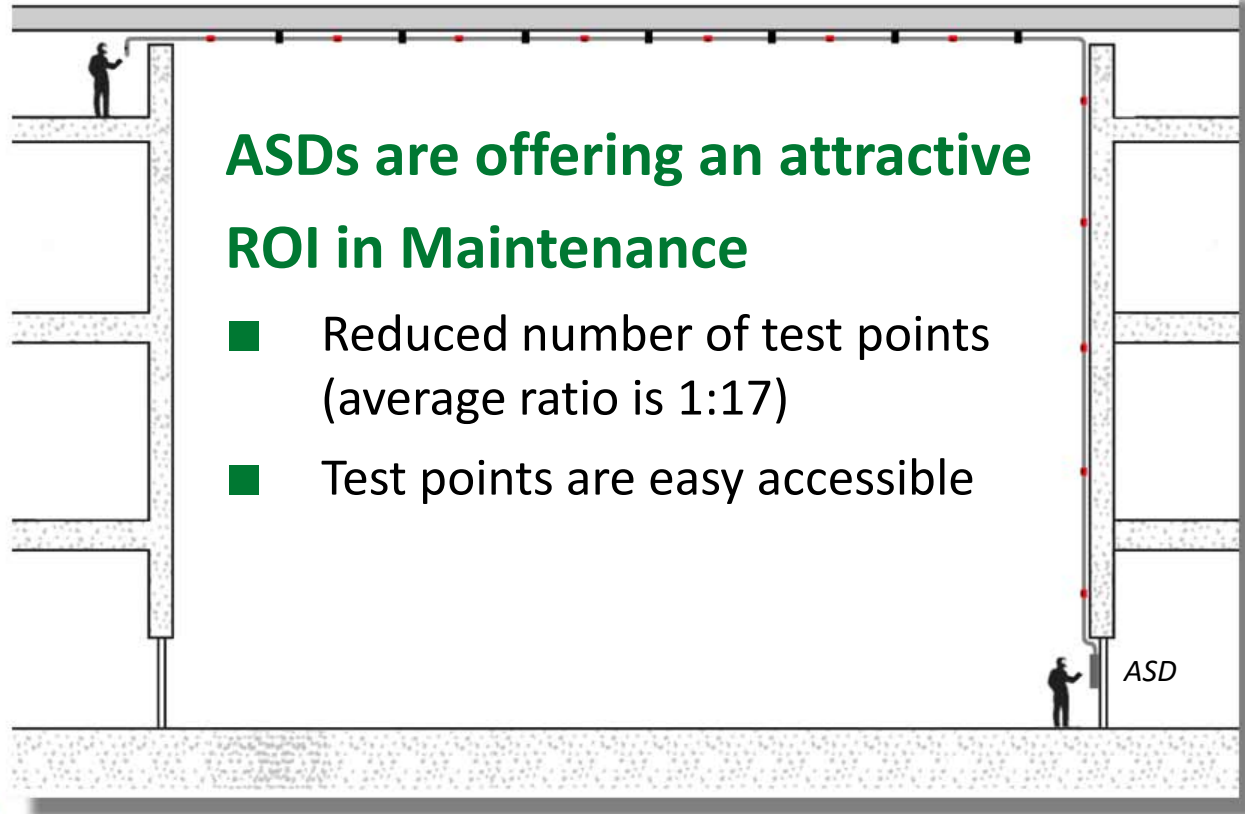
*Deep freeze store of Pistor, Switzerland.
(70m long and 35m high)*

Test points can be allocated where conveniently accessible

Only the most distant point needs to be tested

ASDs are offering an attractive ROI in Maintenance

- Reduced number of test points (average ratio is 1:17)
- Test points are easy accessible



Spot detectors

- 510 detectors
 - tested one by one
- 15 minutes per detector
- Rate: EUR 50 per hour
- Total cost: **EUR 6'375**

Aspirating system

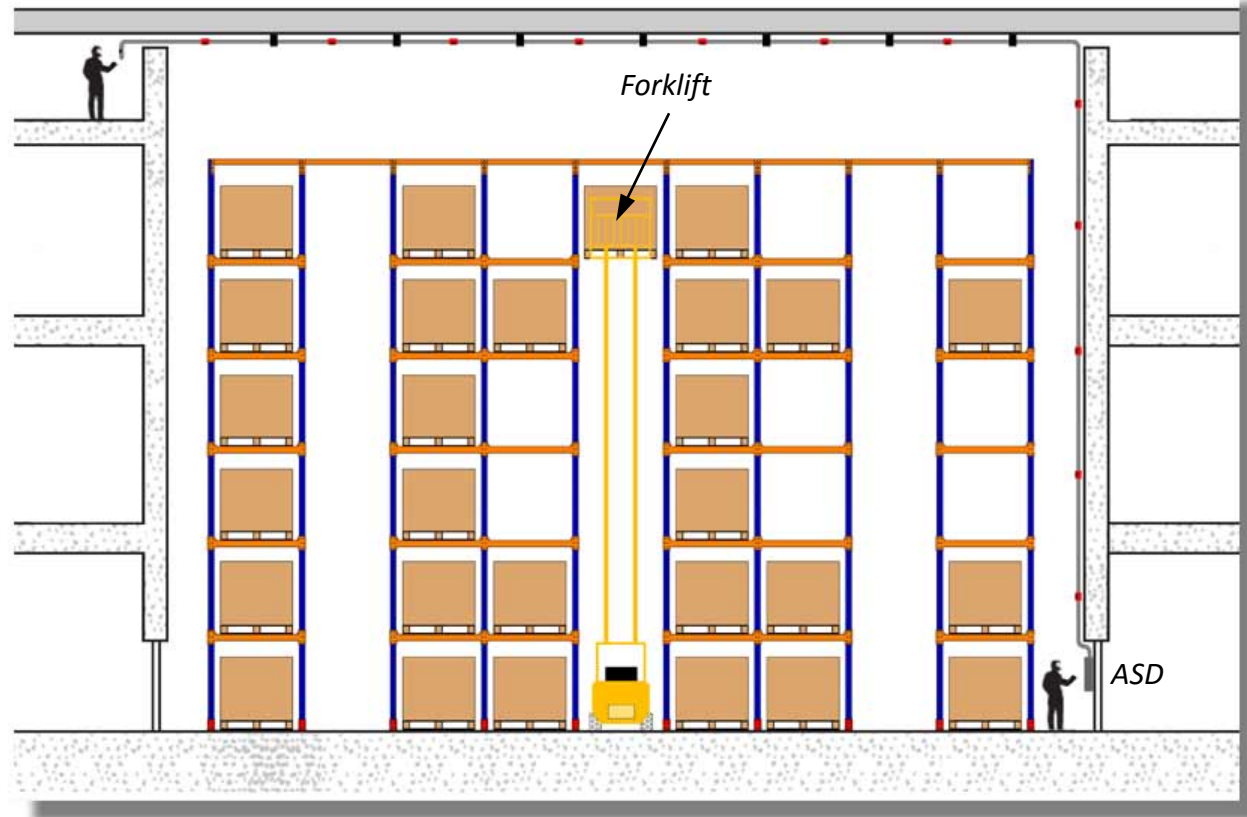
- 510 sampling points but only
 - 30 test points (branches)
- 15 minutes per test point
- Rate: EUR 50 per hour
- Total cost: **EUR 375**

Repeated* Savings: EUR 6'375 – EUR 375 = **EUR 6'000**

*Not only at commissioning, but also at each and every maintenance testing.

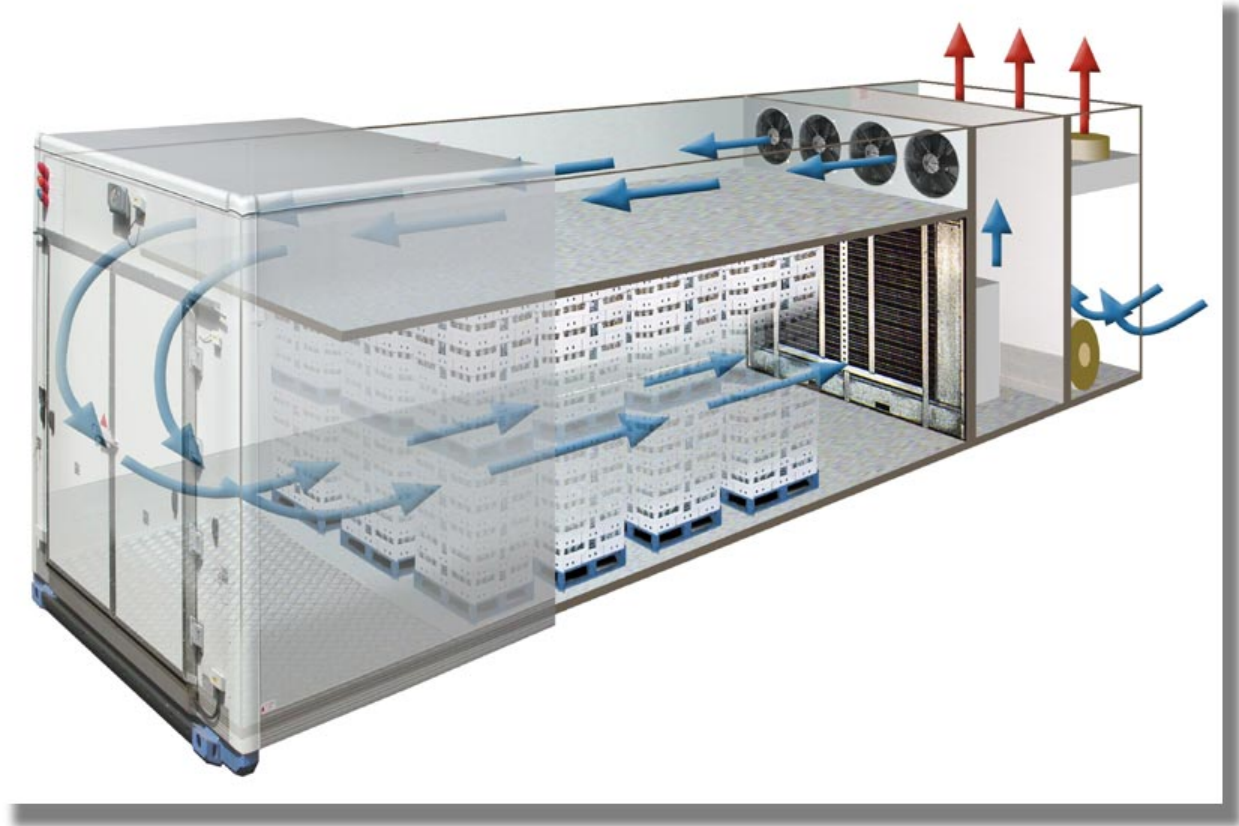
Moving Vehicles

- Disruptive to beam detectors



Air Circulation

- Smoke Dilution
 - Smoke never reaching point detectors
- Sampling faults
 - Sudden pressure changes may challenge an ASD's airflow circuit



Water Vapor Clouds



- Performance
 - Nuisance alarms
 - Frosted sampling points



*Beam and point detectors
will create nuisance alarms.*

Installation Simplicity

- Limited choice of detectors



*Point detectors
are operating at
0°C to 50°C*



*Laser based ASDs
are operating at
-5°C to 50°C*



*Beam detectors
are operating at
-20°C to 65°C*

Operating Temperature Range

An ASD not specified to operate at -30° needs to be mounted outside the refrigerated area. Challenges:

- Condensation on cold tubes
- Ice building up on cold tubes
- Wall penetration



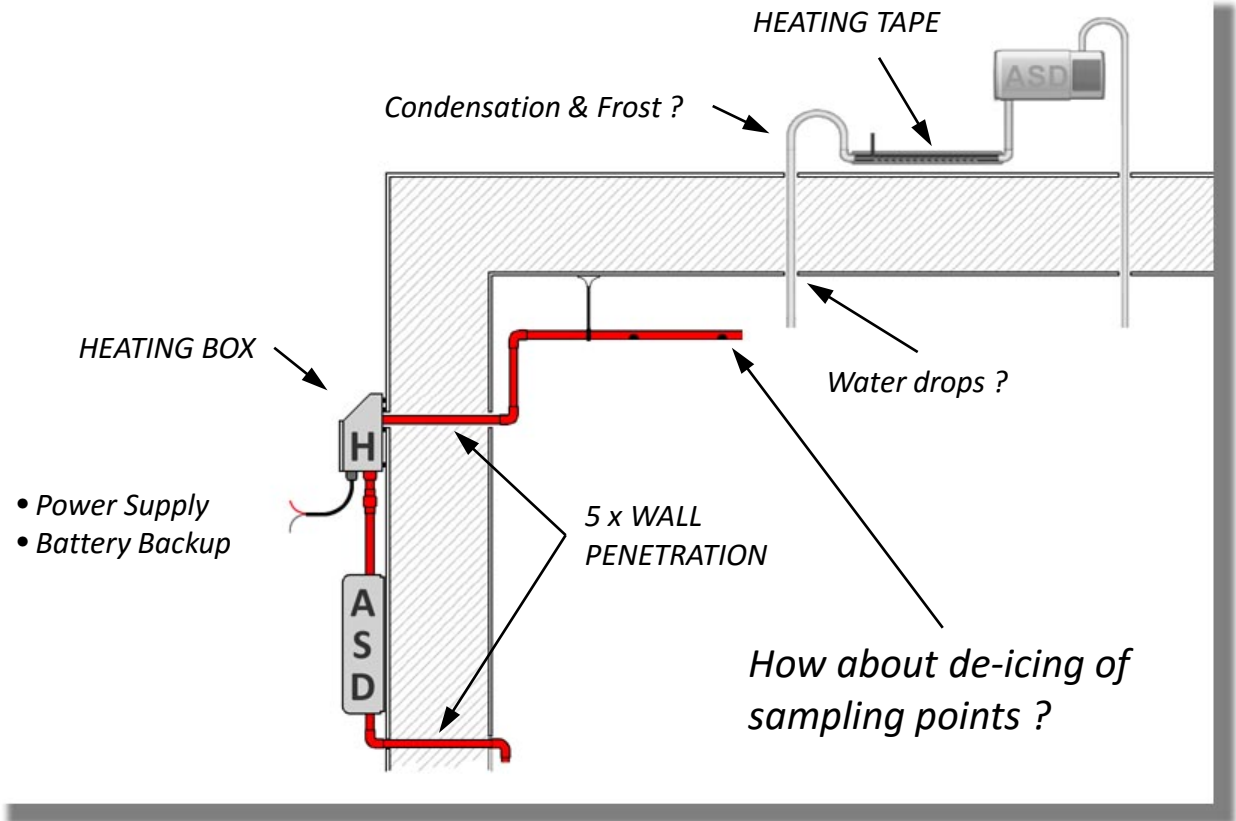
Detectors not able to operate at a temperature of -30°C are not suitable for this type of application!

Some like it hot ...

... and propose a heater box.

A heater box / tape will only answer a detector problem – not an application challenge. In contrary: Heating will lead to other challenges:

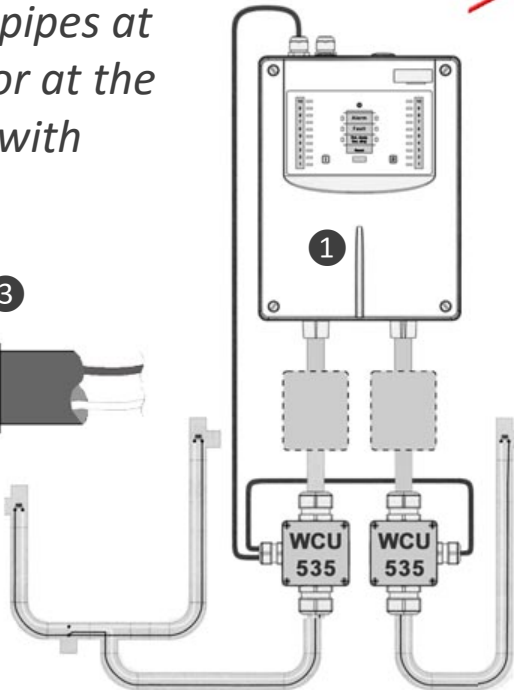
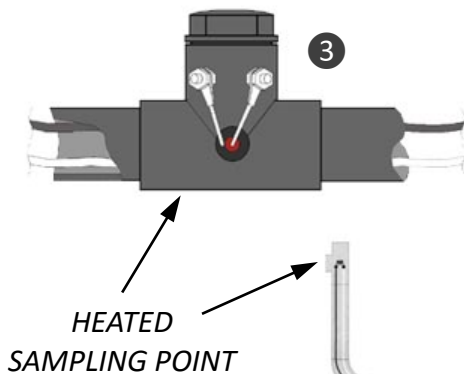
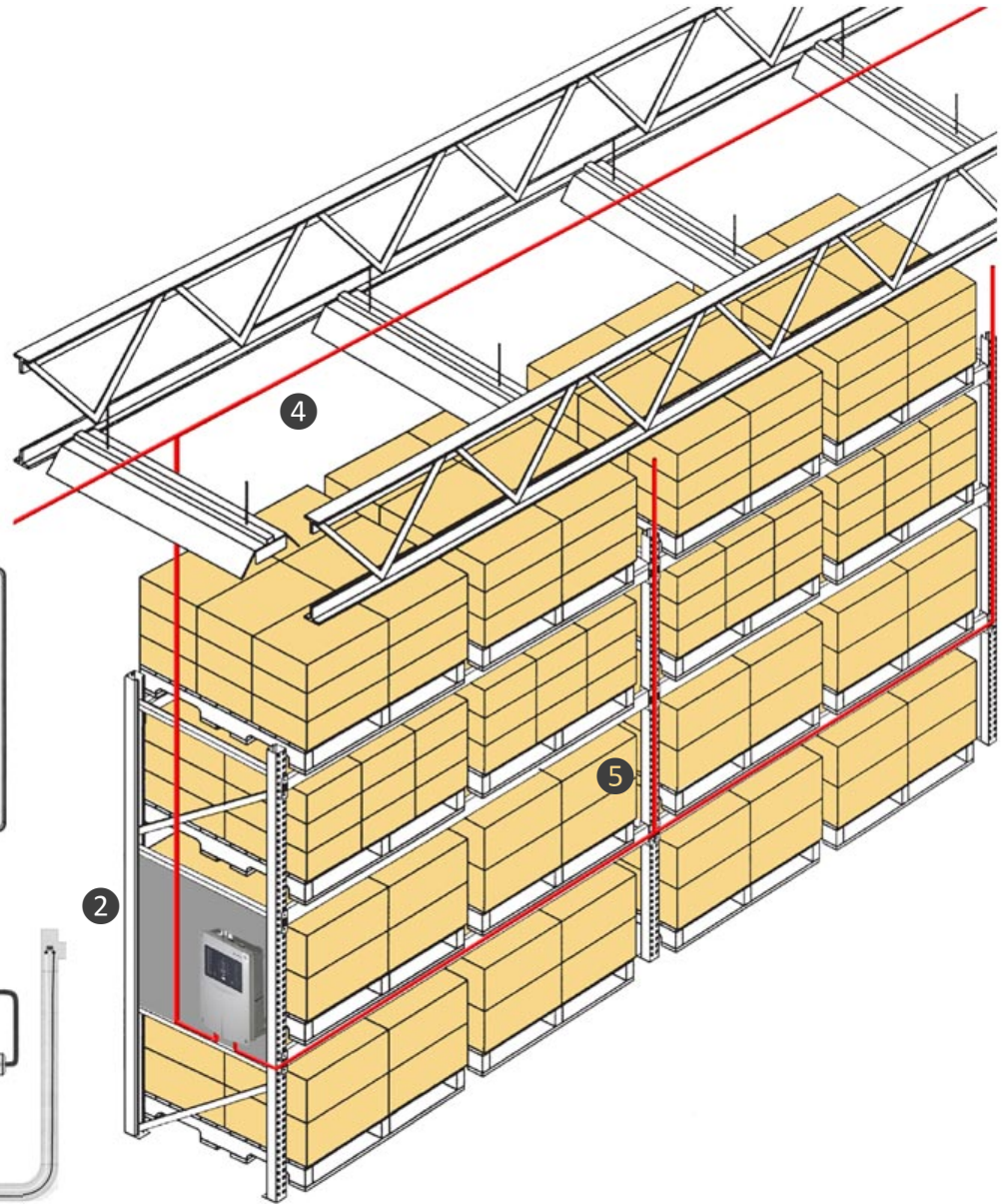
- Extra tubes, cabling, power supply and backup battery
- Lower performance due to added bows and the heater box
- Wall penetration



Does not answer the real need:
De-icing of sampling points

Application Scenarios

- 1 Use -30°C rated equipment
- 2 Mount it inside the cold store
- 3 Use heated sampling points in case of intense air exchange
- 4 Place horizontal pipes at the ceiling to protect the room / area
- 5 Place vertical pipes at the wall and/or at the racks to cope with stratification




SECURITON

ASD 535

Aspiring Smoke Detector

Application guidelines for deep-freeze warehouses
beginning with FW version 01.04.00 (with XLM 38 from FW V 01.06.00)



Mounting and installation

the silicon Litz wires
Litz wires to the in-
lets.
to open through the
slits about 8 mm of
same colour silicon Litz
black with a previously
black, Fig. 6.
through the installa-
tion. The screws of the
plug inside through the
plug point and fastened
it, Fig. 7.

Wiring
The plug
to be adjusted
to prevent short-circuit.
It must be covered by
if it has been pushed
into the plug, proceed as
indicated in Fig. 7.

Notes on the sampling points
The heating resistors on the
plug on the screw ends
two M3 hexagon nuts,
they are controlled in the sam-
pling point, screw on the
nuts that the plug is tight
to prevent air from being sampled.

Fig. 6 Connecting the silicon Litz wires

Fig. 7 Fastening the connection points

Fig. 8 Mounting the heating resistors

Fig. 9 Centring the heating resistor

Commissioning

Configuration
The configuration
software is performed with the "ASD Config" configuration software. In the "Relay" tab,
relevant event, "Heating control sampling P" or "Heating control sampling
control (ASD 535-1 /-3) the "ASD relay 3" (AMB 35) relay can be used, Fig. 13.

Relay programming for ASD 535-1 /-3 (only one sampling pipe)

Relay programming for ASD 535-2 /-4 (with two sampling pipes)

Notice
When RIM relays are used, the existing default events have to be deleted (point C and F, Fig. 14).

SECURITON ASD 535, Application guidelines for deep-freeze warehouses, T 131 390's en 23 / 31

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Application Information	
Product	ASD 535
Component	Opt
Topic	Networking
Version	01.06.00

1. General

This document describes the networking of ASD 535 detectors, with the hardware and software status code on the data side of the document, see section 1.4 for more information. The hardware and software status code are defined by technical progress. Please contact our R&D if you have any questions about functions and procedures that are not included in the scope of this document. The planning of the detection system and the mounting, commissioning and maintenance of the products and installations is transfered as a result to the user's knowledge and experience to be carried out by the trained specialist only.

The products are for use in a protected area as defined by Securiton or by persons expressly authorized to do so by Securiton. In addition it is important that the manufacturer's regulations and guidelines for the planning, installation and use of the products be observed and complied with. Changes and consequential damage caused by a lack of observance of, or modifications to, the products and/or of improper handling are excluded from the warranty. The same applies to improper storage or other causes of damage.

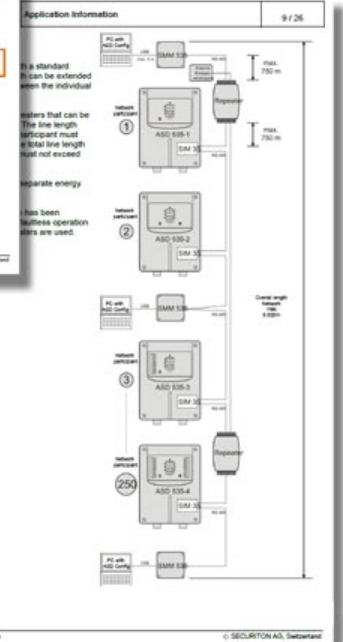
We expressly state that the alarm system must be particularly serviced by approved, qualified and certified companies in accordance with the relevant norms (e.g. DIN EN 54-23:2014, EN 54-23:2014) to ensure the long-term functionality and performance.

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Warning
In this document particularly important features are marked using this symbol. Failure to observe or comply with such critical plug points is a violation of the safety or a technical design.

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ASD 535 Low Temperature Application Guide

ASD535LT_AG_T131390_en_b.pdf

ASD 535 Networking Application Note

AI_01_ASD535_Networking_en.pdf

Areas to be protected	Essential	Recommended	Application Class
Storage Room: ■ Ceiling and roof voids ■ Within racks ■ Side walls (vertical)	✓		B
Freezers / Chiller Rooms	✓		B
Coolers	✓		C
Production / Packaging Areas	✓		B
Loading Bays	✓		C
Return Air Path (under the protected area)		✓	C
Office Area		✓	C

EN54-20 / FIA COP Classification

Class A (Very Early Warning):	< 0.8%Obs./m
Class B (Early Warning)	0.8 – 2%Obs./m
Class C (Standard)	2.0 – 10%Obs./m

Claim	Benefit	Proof
Most reliable and very early detection	<ul style="list-style-type: none">• Early Warning in high airflow environment• No false alarms or icing by vapor	<ul style="list-style-type: none">• Actively sampling the air• Cumulative sampling effect• Automatic de-icing
Most efficiently serviceable system	<ul style="list-style-type: none">• High returns during maintenance• Test sampling point(s) can be outside the cold room.• Units can be networked and remotely operated	<ul style="list-style-type: none">• Avoiding the need to test every sampling point with smoke has tremendous cost savings, especially in areas of difficult access.• Not needing to enter the deep freeze zone for maintenance and testing saves time and costs.
Only way to a staged a incident control	<ul style="list-style-type: none">• Pre-alarms avoiding unnecessary extinguishing release	Four sensitivity levels allowing for Alert, Action, Alarm and Extinguishing Release

Thank you for your attention!



Securiton AG
Alarm- und Sicherheitssysteme
Alpenstrasse 20, CH-3052 Zollikofen
www.securiton.ch, info@securiton.ch