ADW Demountable Switch Room Application Note

SECURITON

Alarm

Fault

APPLICATION

Demountable Switch room buildings are typically designed & fitted out to be transported to site, minimising installation time.

The buildings are typically air-conditioned and have lighting, power, communications and for the purpose of this application note have Securiton ADW 535 Linear Heat Detection units installed to provide warning in the event of an external fire.

The Buildings will typically house:

- LV switchboards and MCC's
- PLC cabinets
- Communications equipment cabinets
- Variable speed drives
- Cable Trays and associated supports

ADW DETECTOR FEATURES

Line type heat detector for 1 or 2 sensing tubes.

Fully programmable response behaviour with differential alarms and max threshold alarms.

Intelligent alarm verification with Dynamic Heat Watch (DHW) to avoid false alarms.

Sensing tubes available – Copper , Teflon and Stainless Steel.

Sensing tube fully monitored for damage due to crushing or breaking.

ADW Heat calculation software for planning stage and ADW Config Software for Maintenance and Commissioning.

Approved to EN54-22 Resettable Line Type Heat Detector.

SEC-ADW-535-2

ADW DETECTOR OPERATION

Heating of Sensing tube over a 5m Distance will change the pressure in sensing tube in relation to reference pressure stored in ADW unit which and in turn will generate an alarm event.
A differential alarm or a max threshold alarm can be generated.

Max Alarm: If the pressure in the sensing tube exceeds the "max alarm threshold" and remains above this threshold during the "Delay time", the system triggers an "Max threshold alarm".

Diff Alarm : If the rate-of-rise of the pressure in tube exceeds the configured limit "Diff. alarm threshold", a delay time is started.

If this limit remains exceeded during the defined time, the alarm verification algorithm is started. It is expected that the pressure increases by the "Alarm verification" value. If this is the case, it is it is deemed to be a fire event and the alarm is triggered. If the "Alarm verification time" expires without the expected pressure increase, then this is only a disturbance.
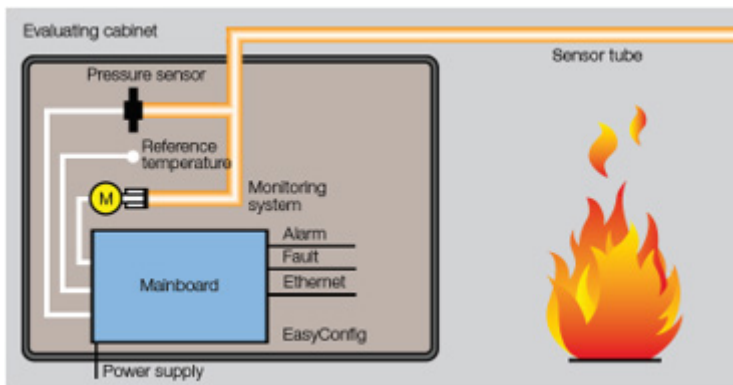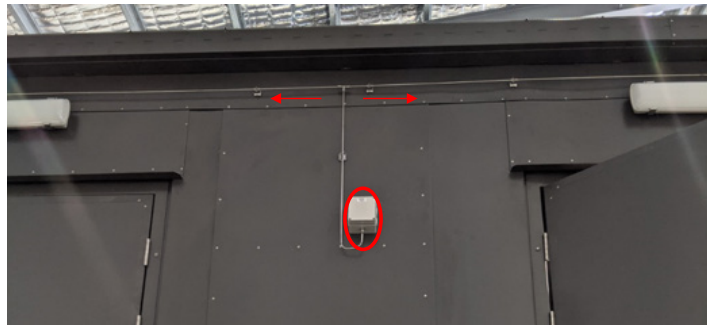
ADW DESIGN

System Design is validated using Heat Calculation software. A heat calculation report can be generated with all configurable parameters for programming and isometric layout of the installation in question.

Sensing tube I calculated parameters

Max. alarm threshold [mbar]	212.6
Diff. alarm threshold [mbar/min]	4.2
Alarm verification [mbar]	10.9
Delay [s]	4
Alarm verification time [s]	600

INSTALLATION DIAGRAM

SEC-TJ 5/4 ST

SEC-TJ 5/4 ST

SEC-PC 5/6 ST
1M Spacing

Sensing tube connection (screw-junction piece)
Tube piece A — Straight screw-junction piece — Tube piece B
Screw-junction piece

Sensing tube
SEC-TC 5/4 ST 10

Flexible hose
FH 5/3 PA

SEC-ADW-535-1

SEC-TJ 5/4 ST
And SEC-EP 5/4 ST (End plug)

**Sensing tube connection
(screw-junction piece with end journal)**
End Journal
Sensing tube — Straight screw-junction piece
Screw-junction piece with end journal

SEC-SS 3 ST

Flexible hose
FH 5/3 PA — Straight screw-junction piece — Sensing tube
SEC-SJ 5/4 ST