VESDA System

18th November 2020

Plant Safety

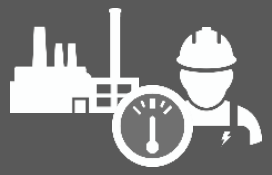
Personnel Safety

Compliance

Enterprise-wide Safety & Security

Addressing Core Industry Problems – Fire Safety Security

Plant Safety



Personnel Safety

Compliance

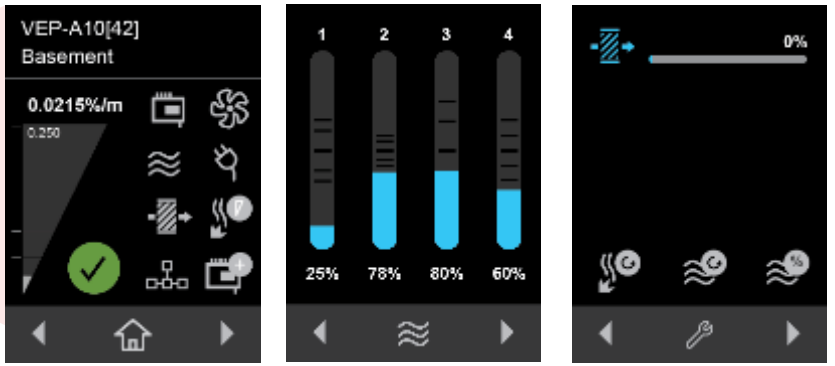
Not much gains with conventional methods

- Safety System, Fire & Gas and Security system Effectiveness
- Hazard Exposure and People Tracking
- Safe and Secure working environment
- Safety Security (incl detectors) Element Analysis
- Safety & Security Efficiency
- Environmental and Asset protected
- SIF and FG Performance Analysis
- Optimize Collaboration, Abnormality and Emergency Response
- HSE, Fire and Safety Standards Compliance

Delivering Gains via integrated PPS and IIoT Platform

VESDA

Very Early Smoke Detection Apparatus



Very Early / High Sensitive Smoke Detector

NFPA 76

6-5.1 For telecommunications facilities, fire detection systems shall be designed, installed and maintained to provide one of three levels of protection: (1) very early warning fire detection (VEWFD), (2) early warning fire detection (EWFD), (3) standard fire detection (SFD). This section establishes requirements for each level of protection, and provides suggested design and installation requirements for meeting the objectives of this standard.

6-5.2.1 EWFD and VEWFD smoke detection systems shall utilize sensors or ports with spacing which is less than that normally required by NFPA 72, National Fire Alarm Code.

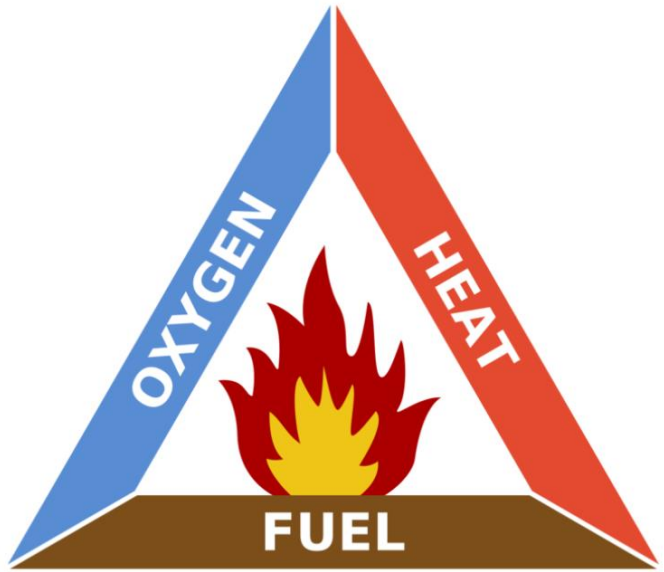
NFPA 316

2-3.1 A listed or approved smoke detection system shall be provided in the cleanroom return airstream at a point before dilution from make-up air occurs. The system shall have a minimum sensitivity of 0.03 percent per ft. obscuration.

Smoke detection systems which are non-air-sampling shall be listed for the airflow rate of the return airstream. Where the system is of the light-scattering type, it shall have a minimum sensitivity of 0.03 percent per ft. obscuration.

- 연기농도에 따른 화재 감지
- VESDA v 일반감지기
- VESDA System Overview
- Industrial Application
- VESDA Model

연기농도에 따른 화재 감지



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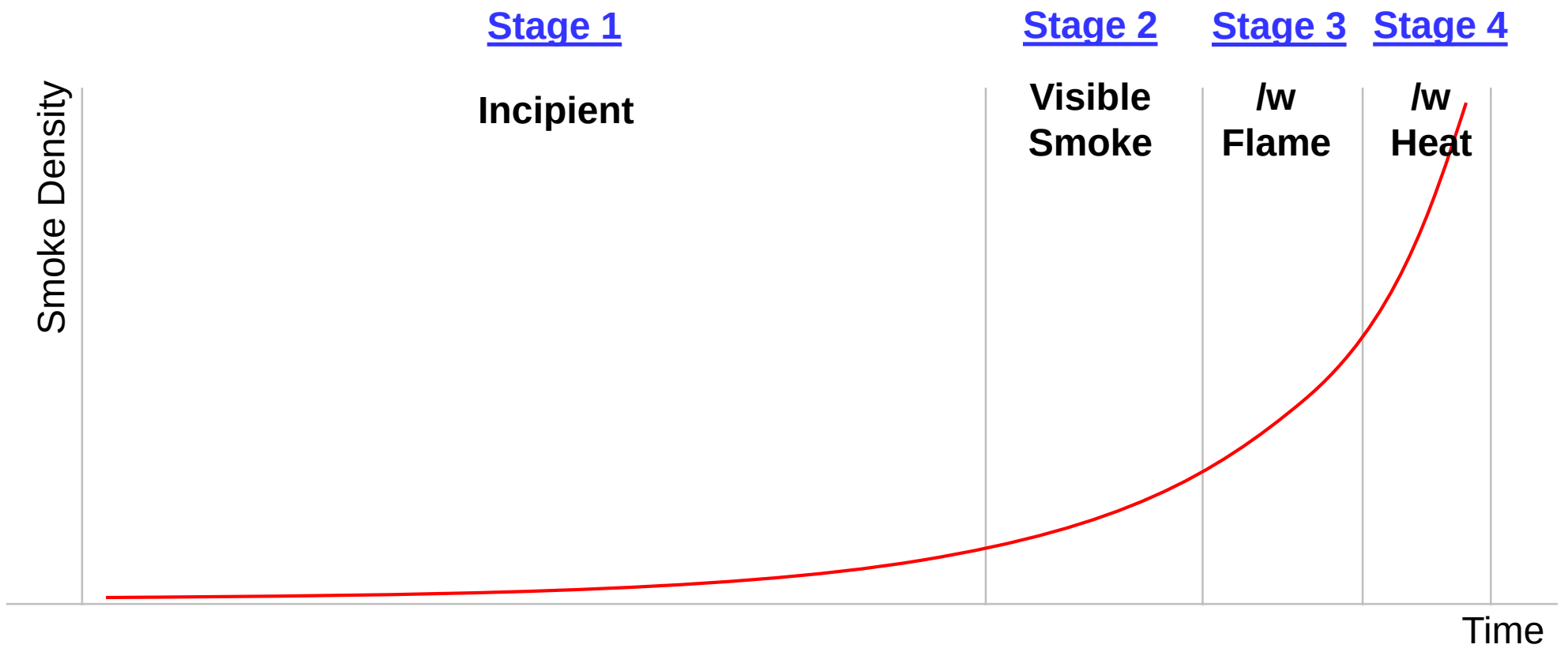

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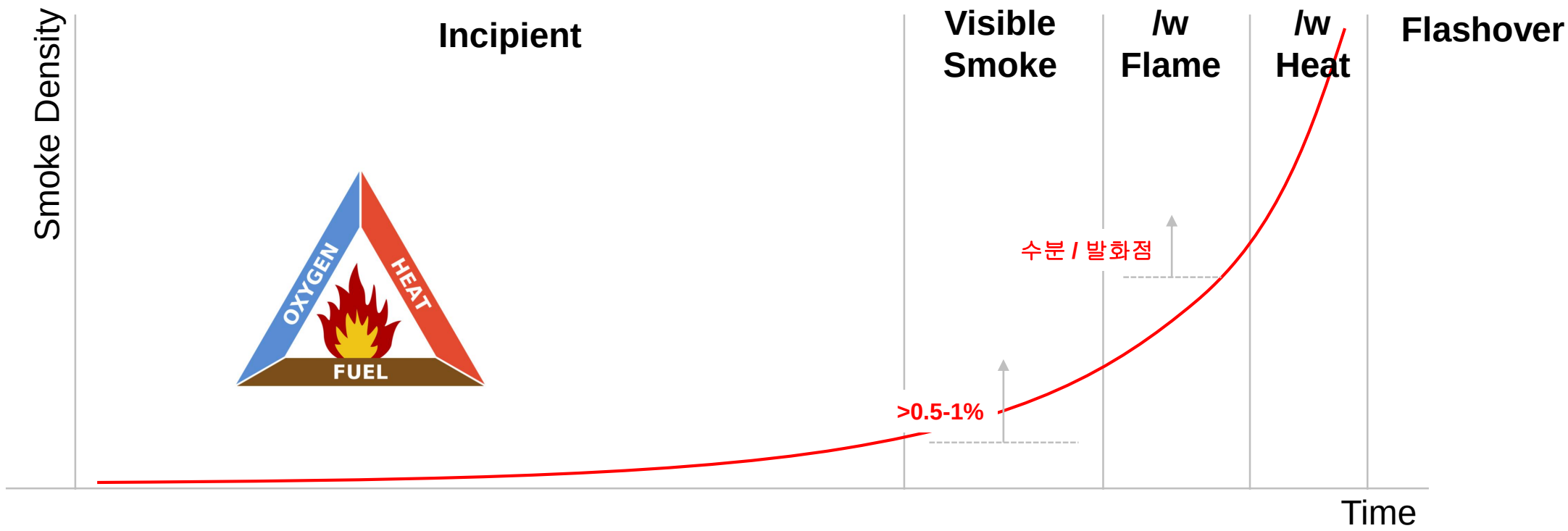

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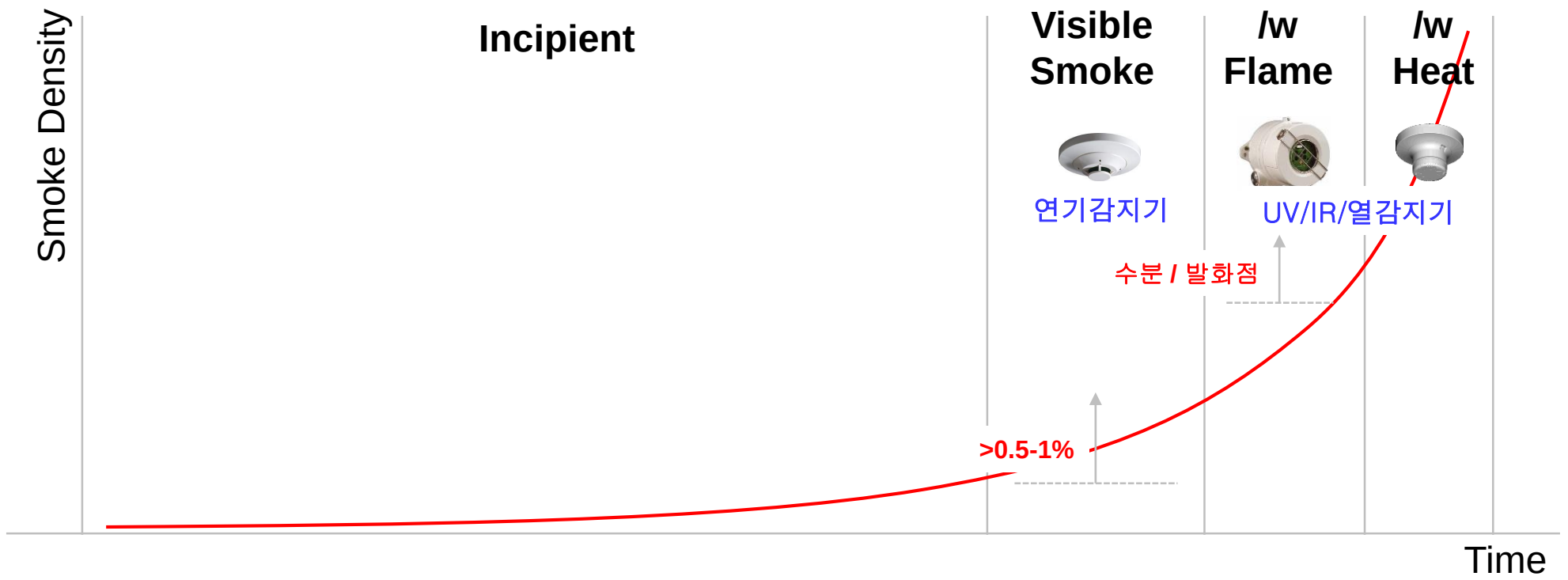
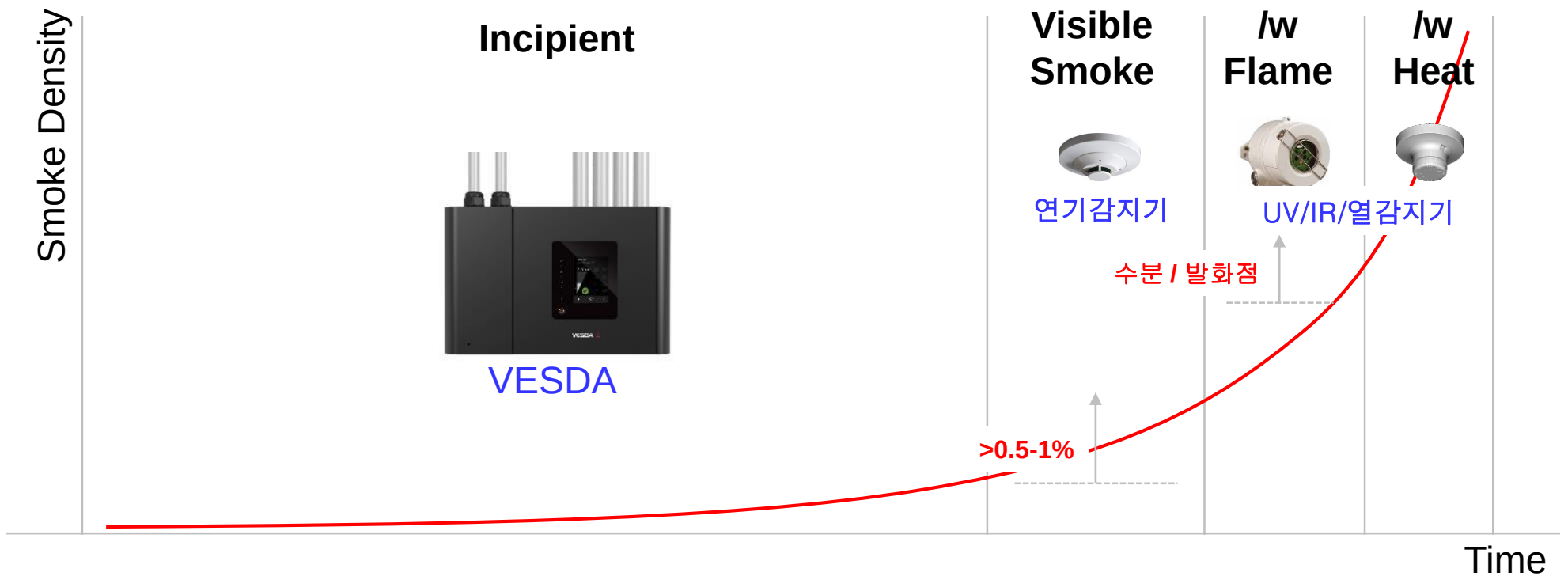
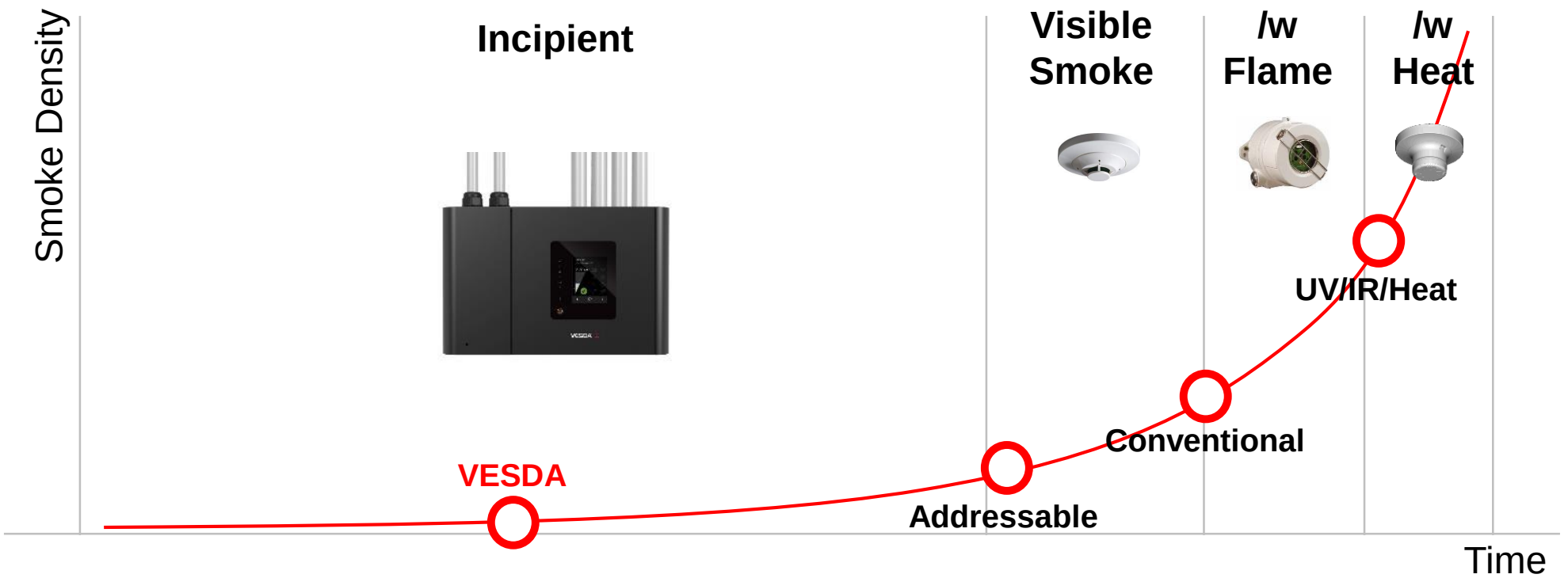


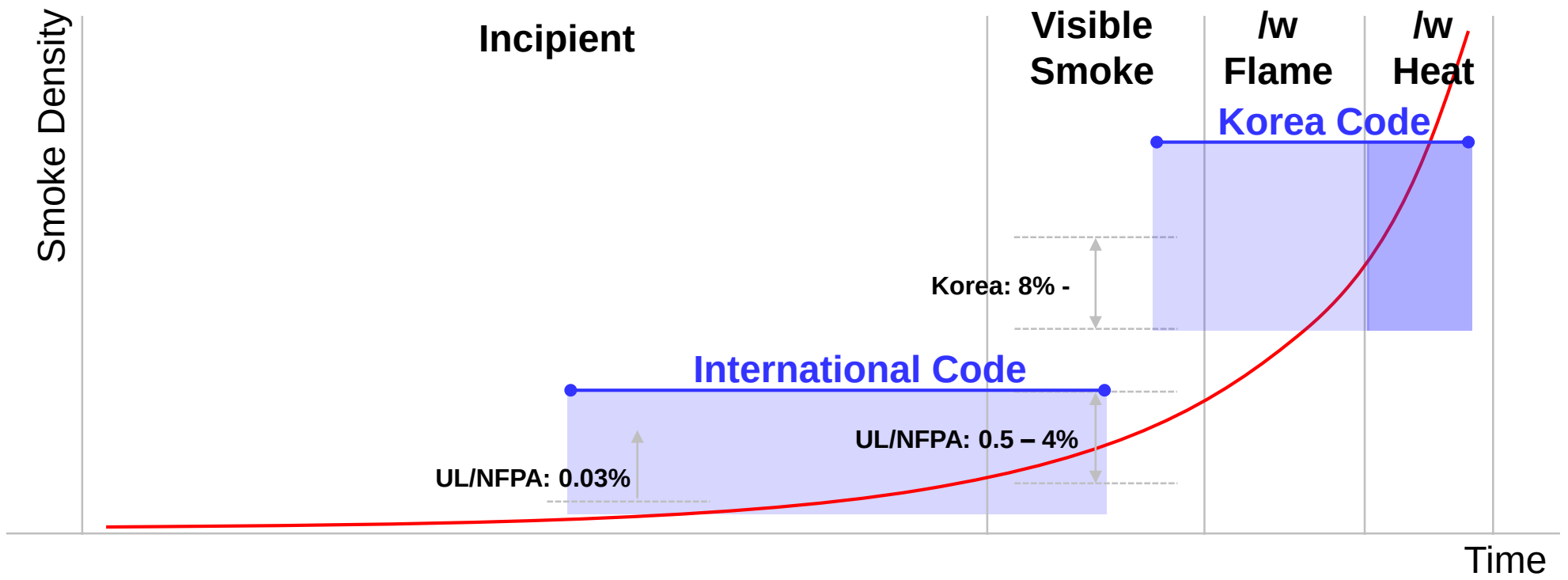
연기농도에 따른 화재 감지 - VESDA



연기농도에 따른 화재 감지 – 감지기 별



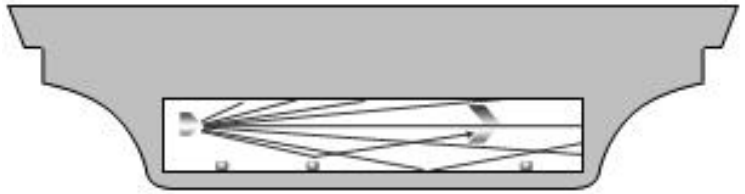
연기농도에 따른 화재 감지 – 국제/국내 기준



VESDA v 일반감지기

감지기 주요 구성

광전식 연기감지기



- LED beam
- 수광부 / 발광부
- LED 산란광 검지 방식

VESDA

- Laser beam
- 수광부 / 발광부 / 광 Diode / Image Sensor
- 오동작 방지 filter
- 공기흡입기
- 적외선 Laser 산란광 검지 방식

VESDA v 일반감지기

	VESDA	Spot type
Sensitivity	0.0016% - 6.25% obscuration/ft	0.5% - 4% obscuration/ft – International 4% - 12%: Korea
Bill of Material	detector, power supplier, battery, pipe & installation accessories	detector and base
Detection Zone	Room or zone - Max 2,000 sqm	Max. 50 – 150 sqm
Alarm Level	2 x pre-alarm / 2 x confirmed fire alarm	General type: 1 x confirmed fire alarm Addressable: depends on model
Alarm Setpoint	By user	By factory
Trouble	Sensor, Aspirator, Airflow, Power, Filter, Chamber, Communication failure	Power & communication failure
Calibration	Yes	N/A

VESDA System Overview

VESDA 주요 구성

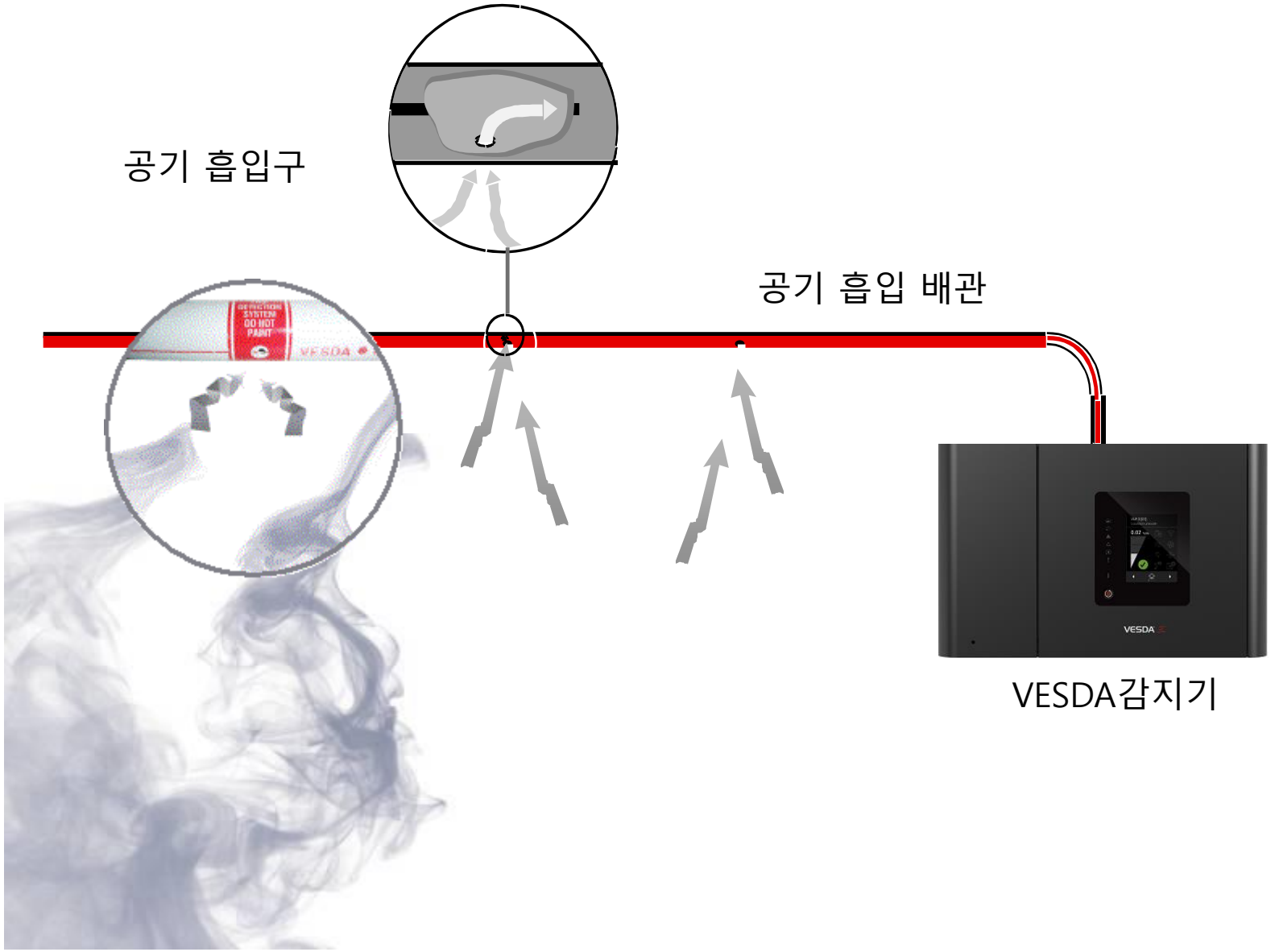
VESDA Pipe

VESDA 감지기

Tube + Hole Accessories

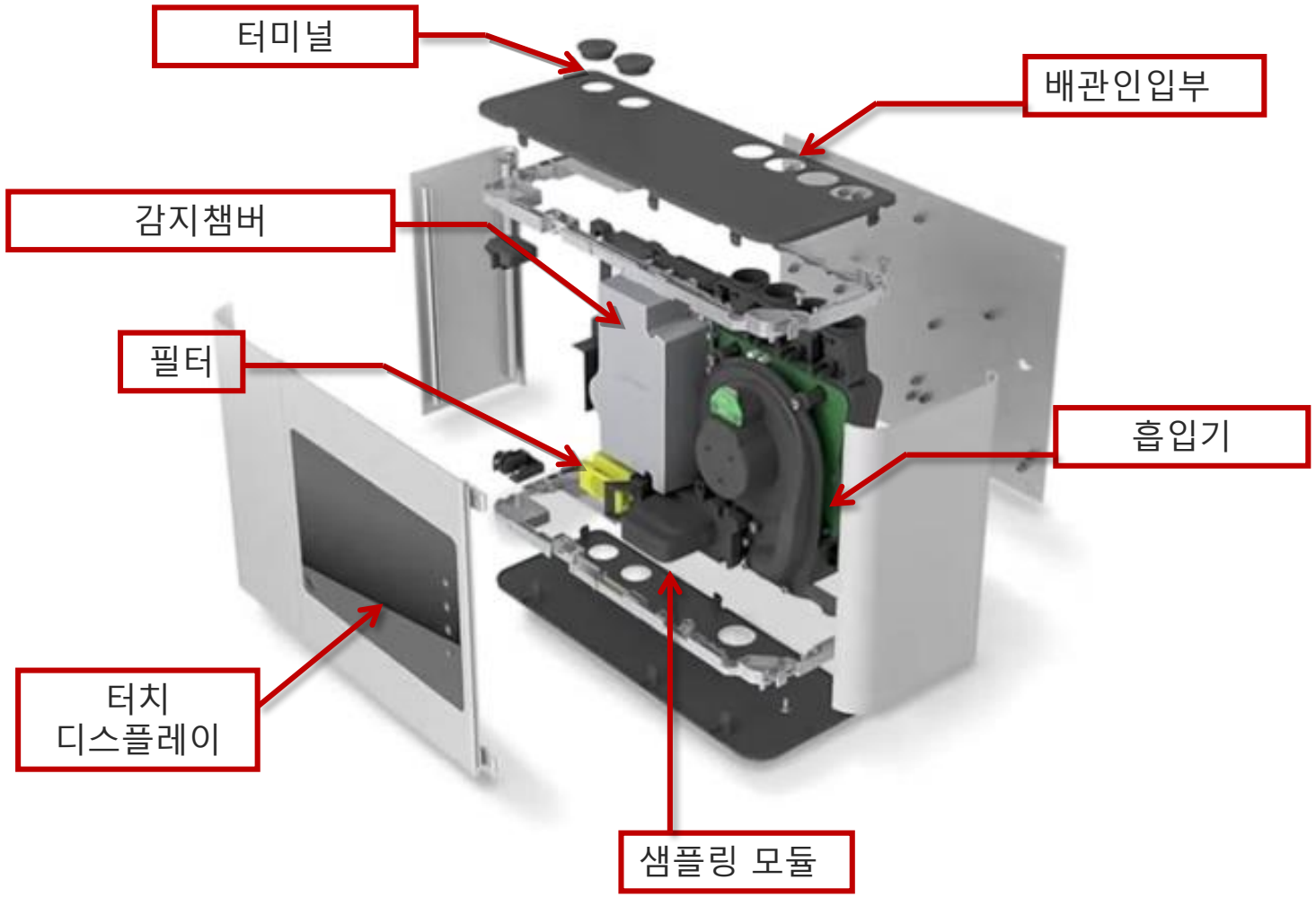
Power Supply
+ Battery

VESDA 연기 감지



- Aspirating by Fan
- Filtering
- Smoke Sampling
- Smoke Sensing
- Analyzing
- Alarm

VESDA 감지기 주요 구성

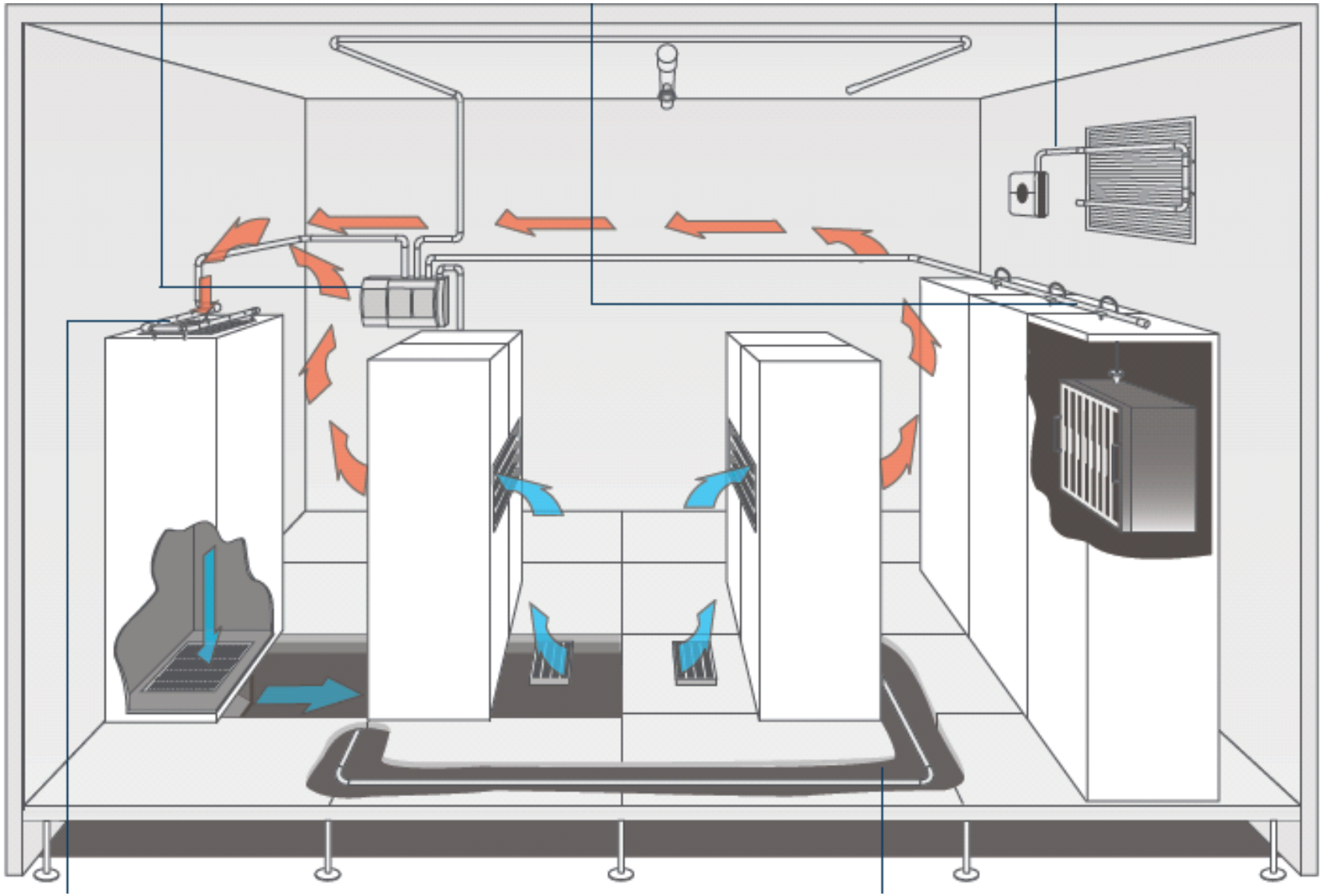


User Interface

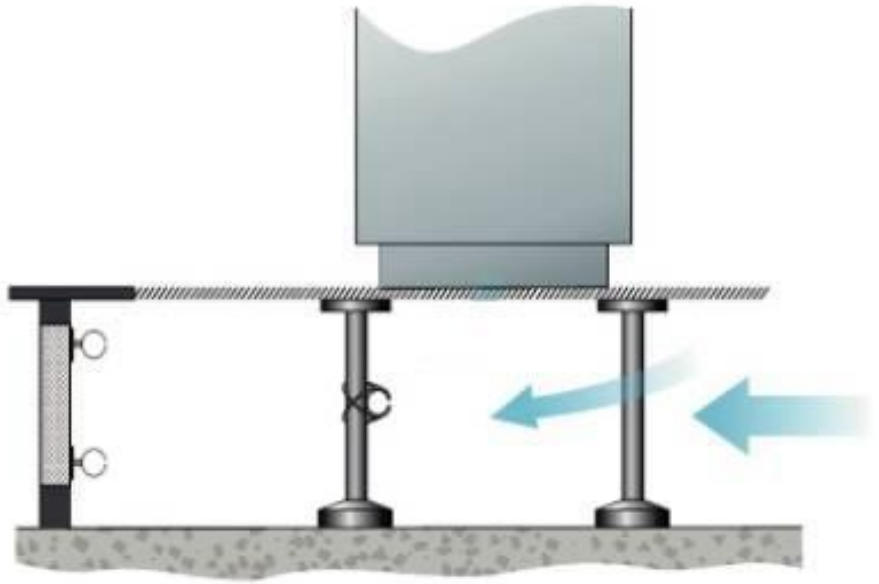
- VSM 4 – Operation S/W
- E-mail Alerts
- Remotes
- iVESDA – Engineering S/W
- VESDA Web Server(Future)

Industrial Application

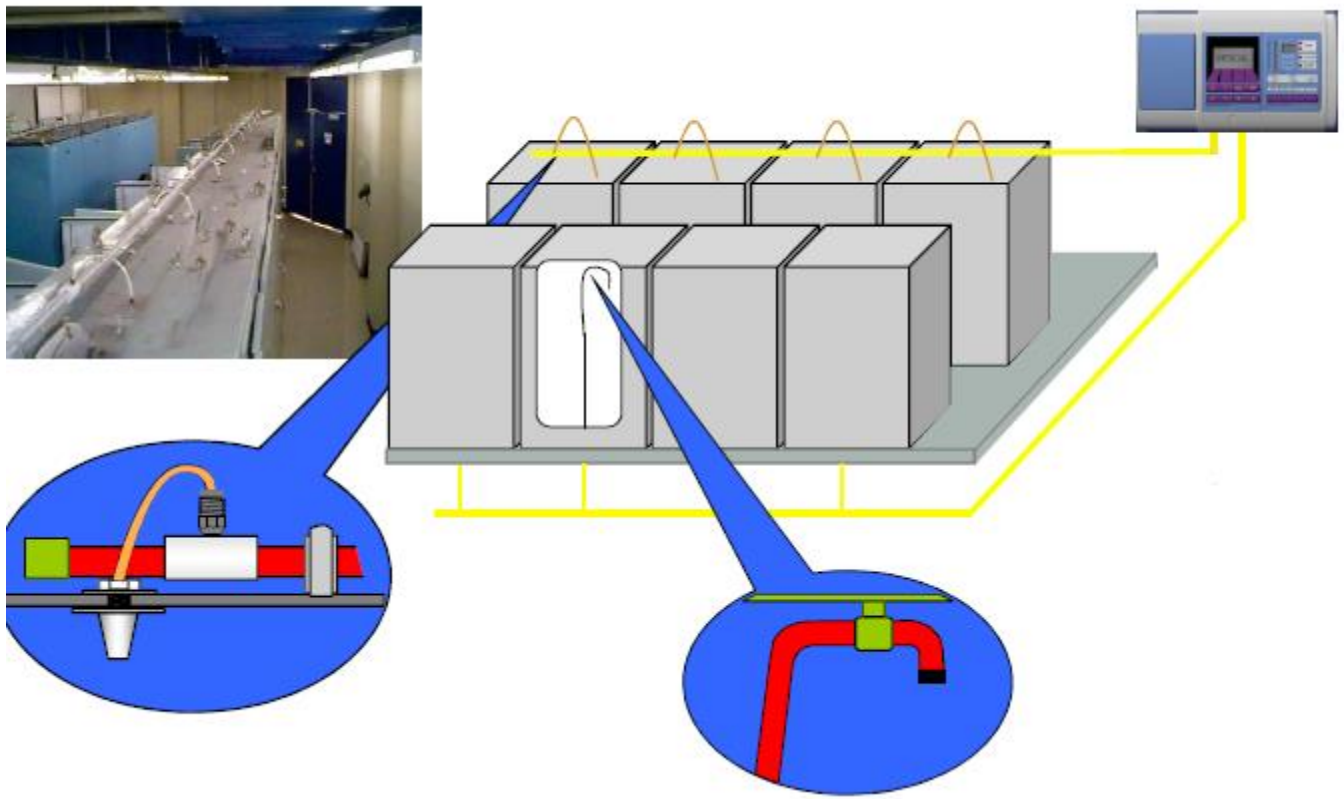
Rack Room / 전기실 / Substation



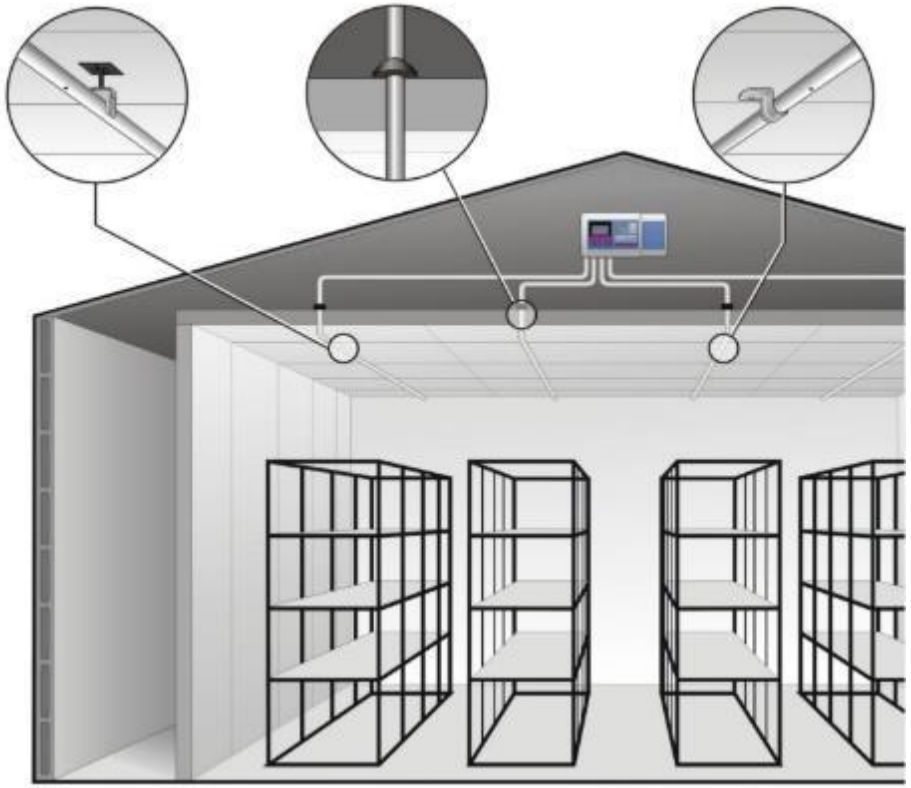
Access Floor



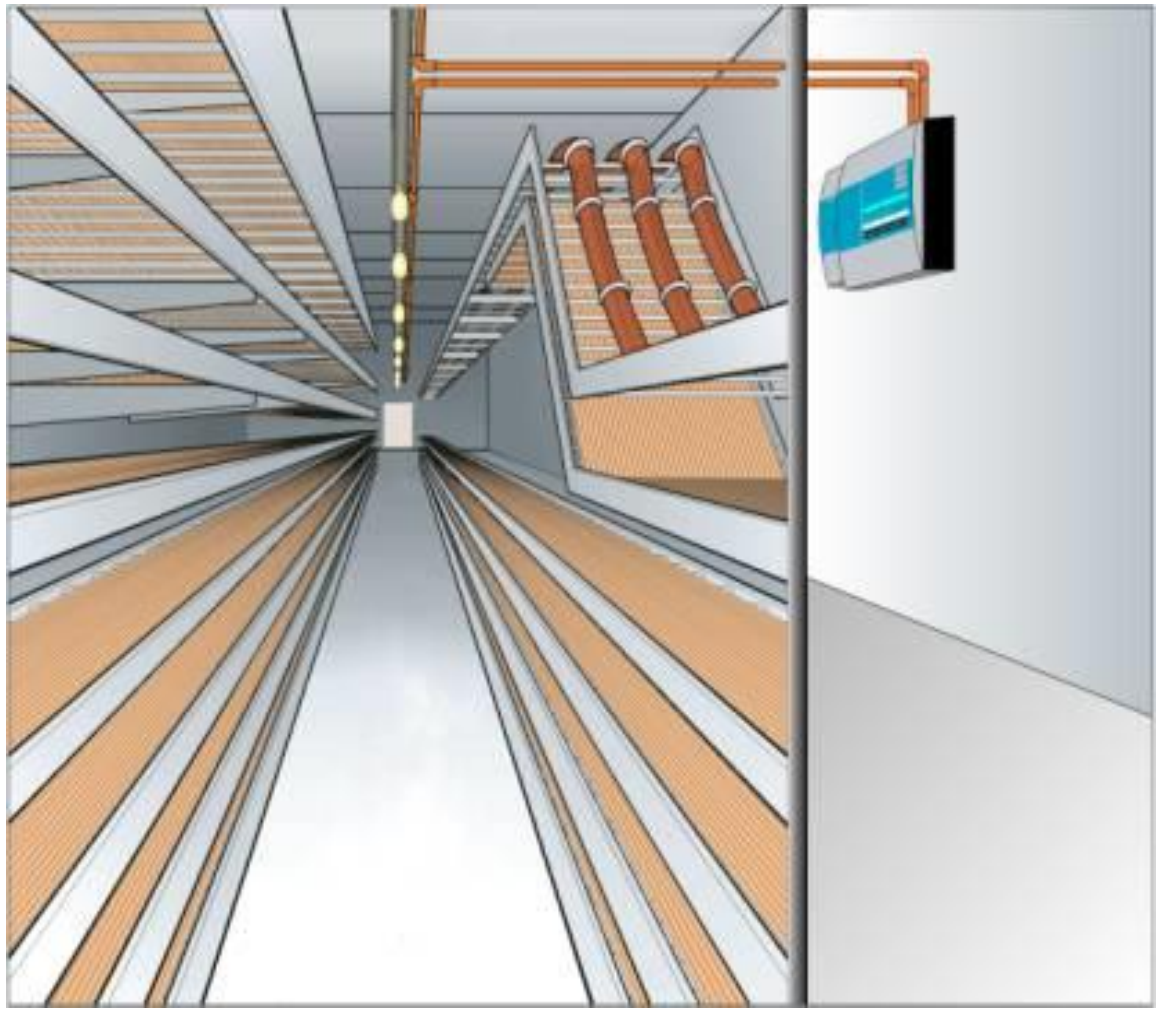
Cabinet Monitoring



Warehouse / 자동화창고



공동구 / Cable tray



VESDA Model

Invented VFT-15 addressable VESDA ASD

OSID – Dual wavelength open air smoke imaging

VESDA VLI – ASD for harsh & industrial environments

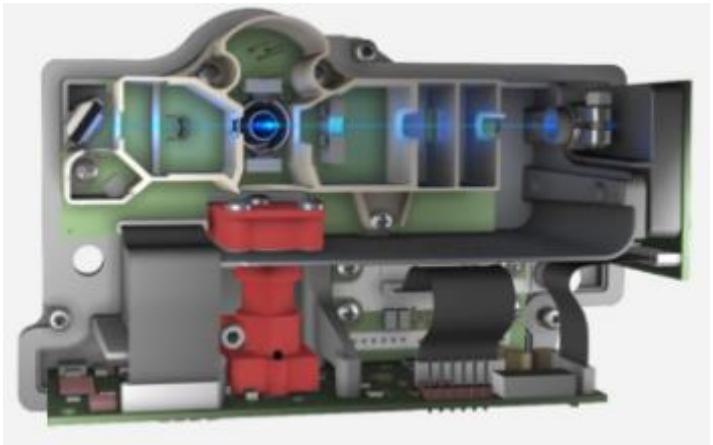
VESDA-E VEU / VEP– Redefining & setting new Benchmark for ASD

VESDA-E VEA
Industry First
Addressable ASD

VEP / VES / VEU

FLAIR™ 챔버 감지기술

- **레이저 광** 산란 기술과 CMOS **이미지 분석기술** 적용으로 우수한 감지성능 제공
- 5개의 수광부(Photo-diodes) 는 다양한 각도에서 **산란광 측정**
- 절대연기농도 보정 (Absolute Calibration)
  - 연기챔버 교정 불필요
  - 감지기 수명주기 동안 일관되고 재현 가능한 성능제공
- 뛰어난 내 오염성으로 다양한 감지기 적용장소에서 유지관리비용 감소
- 입자구분 기술로 비화재보 감소
- 매우 작은 입자도 감지하여 다양한 분야에서 조기 연기감지 가능



VEP v VES

	VEP-1	VEP-4	VES
감지면적	1,000 m^2	2,000 m^2	2,000 m^2
최대감지농도	0.0016%/ft	0.0016%/ft	0.0016%/ft
EN54-20 샘플링홀 수 (A/B/C)	30/40/45	40/80/100	40/80/100
직선 배관길이	100 m	280 m(4x70m)	280 m(4x70m)
가지배관 길이 (Max)	130 m	560 m	560 m
릴레이수	7	7	12
Address	1	1	4
연결성	USB, Ethernet, WiFi	USB, Ethernet, WiFi	USB, Ethernet, WiFi

VEA

- 레이저 광원을 이용한 조기 연기감지
- **40개 샘플링 튜브 연결**
- 샘플링 튜브 최대 길이 100m
- 샘플링 튜브 자동 청소기능
- 샘플링 튜브 또는 샘플링 포인트 막힘감시
- 샘플링 튜브 터짐감시
- 필터, 연기챔버, 펌프, 로터리 밸브 현장교체
- VESDA 네트워크, TCP/IP, WiFi, USB 연결제공
- 감시시설 운영 중단없이 감지기 시험 및 유지보수
- 7개 릴레이 내장 – 40개 릴레이 확장 가능
- 20,000개 이벤트 로그저장

감사합니다.

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