Advanced with Flame Detection sensor and AI technology

Visual Fire Detection Solution

WEBGATE

Fast, Accurate !

Visual Fire Detection Solution

Proposal

01 Need for the solution

02 Fire Detection Image

03 System Configuration

04 Comparison by Detection Method

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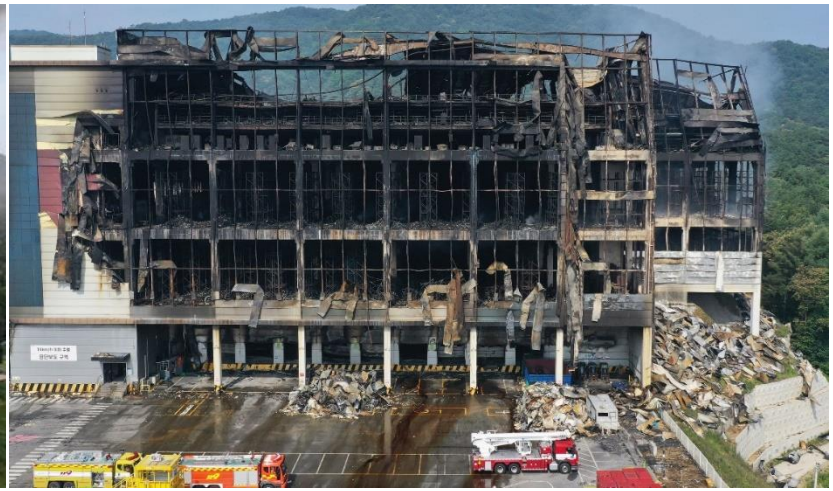
09 Company Introduction

■ The example of fire case (Logistic center)

The initial extinguishment failure leads to larger fire

The detection of fire with the help of video will be very useful to achieve initial extinguishment



(1) – The actual detection range test

- The detecting camera installed about 35m (about 38 yard) away responds to gas torch immediately

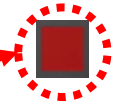
(2) – Under explosive and smoke / dust environments

[Note]

The dust covers video but the gauge indicates that the fire is well detected

- In the event of explosion fire, the smoke covers within seconds, which the conventional detectors are not able to detect properly. The WEBGATE's visual fire detector can make quick detection and notification along with checking ignition point through recorded video footage.

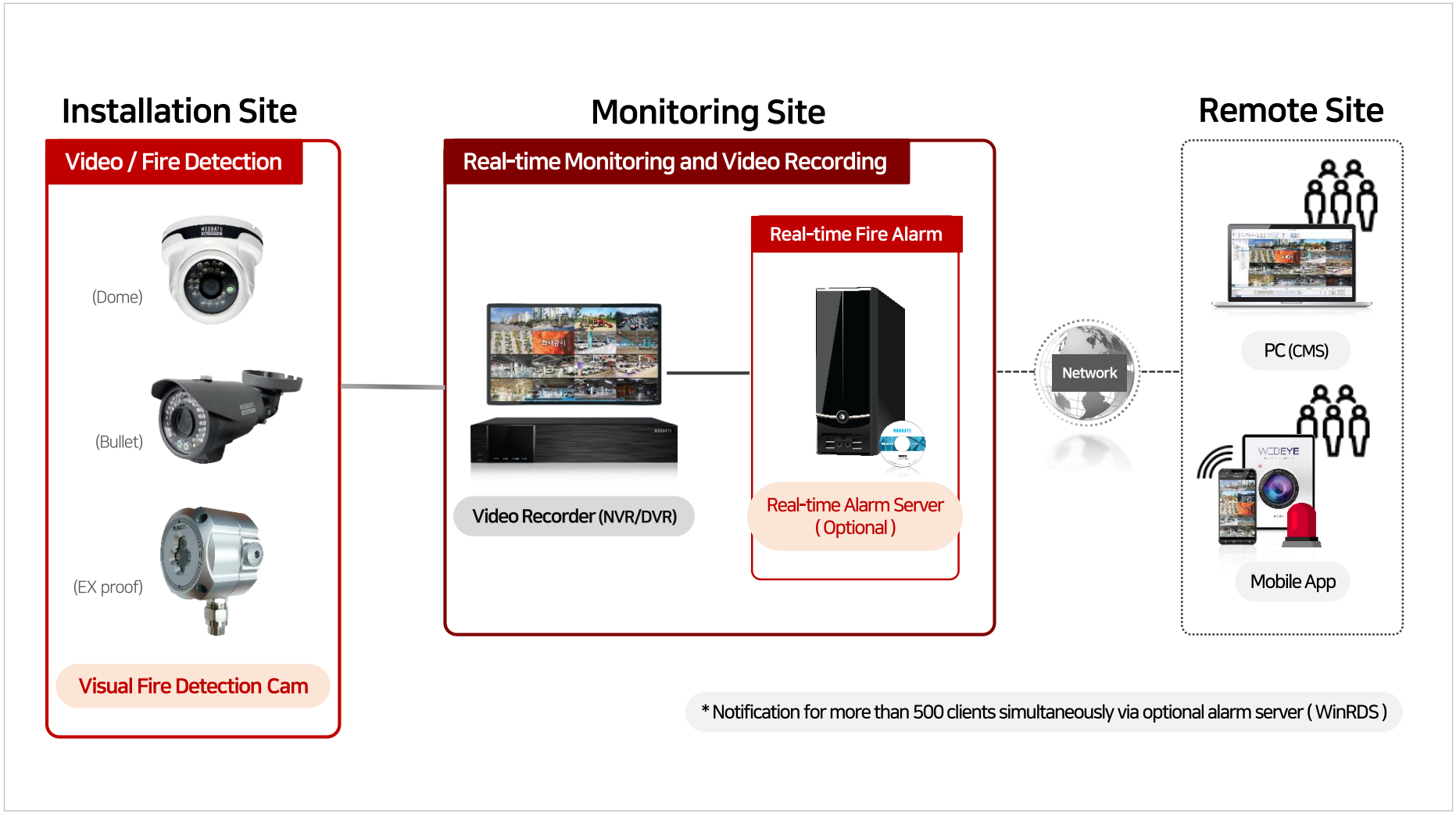
(3) – Welding environment



[Note]
When the gauge goes up and exceeds green gauge, the alarm is triggered

- When there's no needs for detection of fire such as the case of welding, user can adjust detection durating and sensitivity to filter out no necessary cases.

03 System Configuration



04 Comparison by Detection Method

Conventional Products

Sensor sensing type

Strength	High accuracy Detect time (1 sec)
Weakness	No sensitivity setting No video monitoring

Image analysis method

Strength	Sensitivity control Video monitoring
Weakness	Low accuracy Detect time (10 sec) High cost

WEBGATE's visual fire detection

- High accurate Dedicated sensor
- Fast detect time within 1 second
- Sensitivity control for various environments
- Full-HD level CCTV monitoring
- Competitive product with reasonable cost
- Interlocking with 3rd party's devices

Features - unit

Flame detection with dedicated sensor

- High accuracy by detecting the flame's unique wavelength
- Low false rate compare to video analysis method which analyzes color and shape
- Optimum algorithm from 5 years experience in field

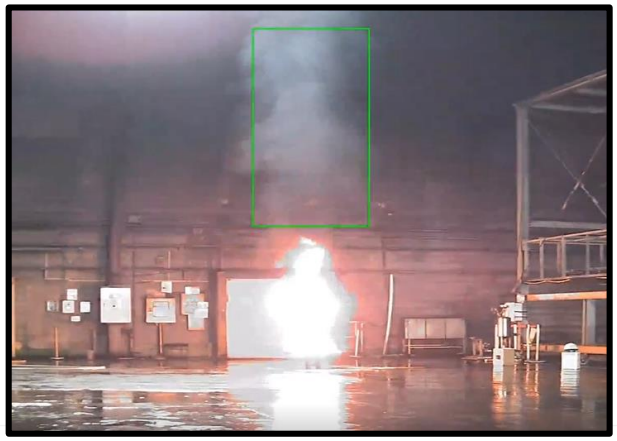
Flame detecting gauge Patent

- Detecting gauge displays flame status visibly
- Real-time check for malfunctioning of product

Detection time

- Min. 1sec for flame detection, sensitivity is adjustable (~10sec)
- Video analysis type requires min. 10sec for analysis

Features – AI (for NK2100-AI series only)

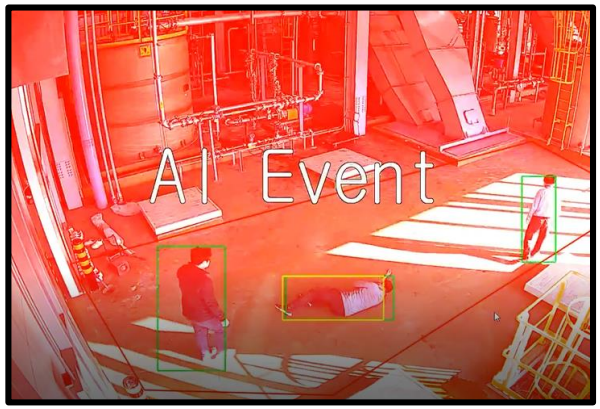


Smoke detection

- Smoke detection by AI to help fire detection earlier and accurate
- Sensing the fire by dedicated sensor (hardware) or AI selectable

Fall Down and Intrusion detection

- To check and monitor the event possibly occurs in the place like factories
- Monitoring factory workers and to help minimize casualties while fire accident occurs (fall down detection)



Features - solution

Fire Detection Alarm

- Fire detection alarm is displayed on monitoring image real-time
- Rapid reaction toward fire with various warning alarms from PC, Mobile app and linked devices such as light and audio

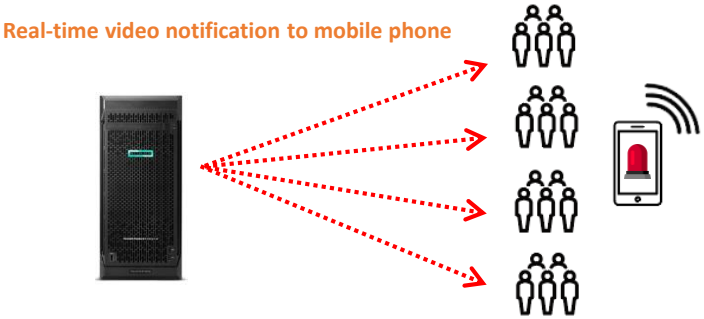
Real-time Video Monitoring and Recording / Playback

- Real-time video verification in the control room or client site (PC or mobile app)
- Verification on the fire scene through recorded video playback (from recorder)

Real-time Fire Alarm Server (WinRDS)

- Real-time fire alarm notification along with video to a large number of users (Android, iOS)
- Personal information protection : To send alarm notification only when the fire detected
- Video access rights per specific person or group to strengthen privacy protection

※ The software (WinRDS) is optional



Real-time fire detection and push alarm

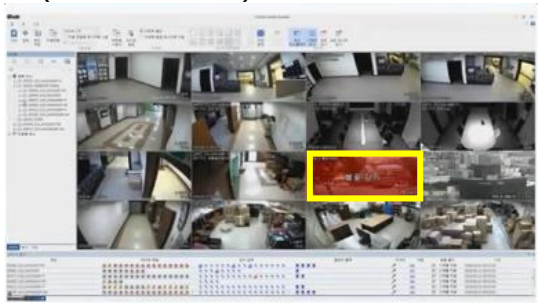
1. Before flame detected
(No change on detecting gauge)

2. After flame detected
(Detecting gauge changes)

3. Pop up alarm after flame detection

4. Remote monitor before flame detected

5. Remote monitor after flame detected
(Remote alarm)



6. Mobile phone after flame detected
(Push alarm)

Demo Video

Core Technologies

Patent Registration

- Patent No. 10-1731995 (A fire-monitoring camera)
- Patent No. 10-1709919 (Fire detection system capable of controlling sensitivity and control)
- Patent No. 10-2368191 (CCTV camera device capable of smoke and fire detection based on artificial intelligence))

특허청

Procurement Excellent Product

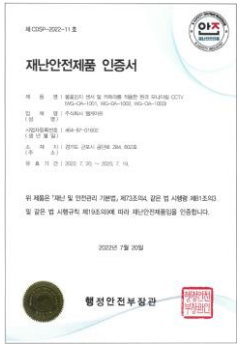
- Certification for the performance of technology development products developed by medium-sized companies
- Product Name : Remote monitoring video surveillance system applying flame detection camera (WG-OA-1001, WG-OA-1002, WG-OA-1003)

중소벤처기업부

Disaster Safety Product certification

- The certification for products that are close to national safety
- Product Name : Remote monitoring CCTV applying flame detection sensor and camera (WG-OA-1001, WG-OA-1002, WG-OA-1003)

행정안전부



Applications

Corporate/Factory

DS Neolux (Semiconductor Factory)

Eco Pro BM (Secondary Battery)

Daewoongbio chemical

LH Korea Land & Housing Corp.

Il-jin Display factory

Han-wha Chemical

Recycling factory in Wolsan

LG Chemical

CJ Vietnam factory

Korea Nuclear Power Institute in Taean

Resorts

Sono Hotel & Resort

- Yang Yang branch
- Solbeach branch
- Chungsong branch
- Delpino branch

Market/Cultural Properties

Traditional Market in Guro , Seoul

Seoul Metro (Line No-3)

Recycling area of LH apartment branches

Heunginjimun Gate (Cultural Properties)

Botanical Garden in Iksan

Major References – case study

Business Overview

- Approx 270ea visual fire detection cameras are installed for fire prevention and safety management at DS, which develops/produces OLED materials

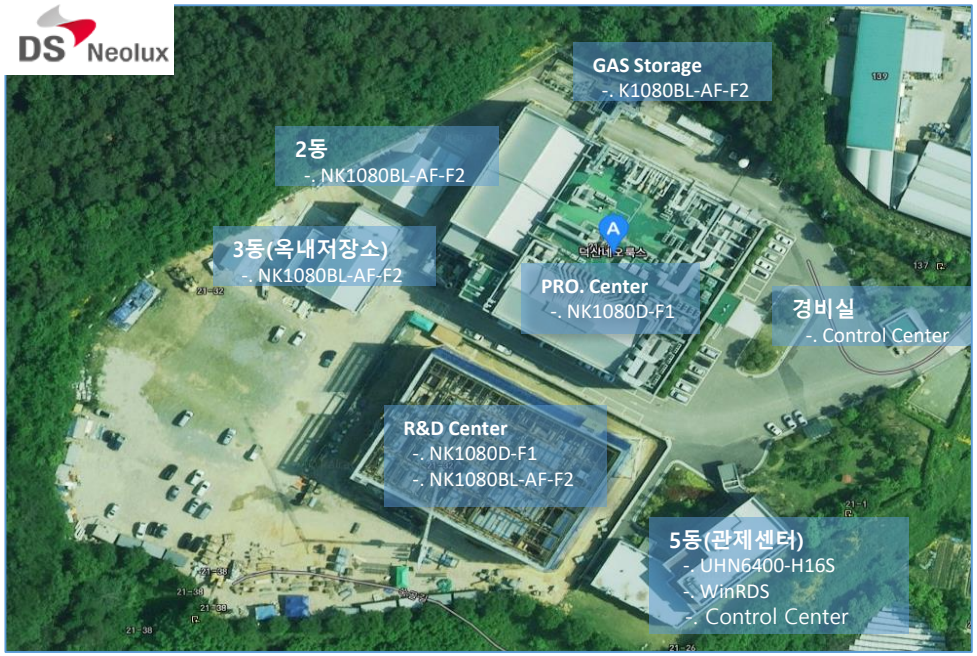
Installation Effect

- Detected fire detection alarm more than 10 times
- Established measures to prevent recurrence through video analysis on accident cases

Notes

- Total project cost : Around USD 0.7Mil
- R&D center and PRO, which are high-risk areas for fire, the cameras are installed with a min 10-15m intervals to avoid blind spot

Model Name	Description	Q'ty
NK1080D-F1	Indoor dome type Fire detection sensor : 1ea	226
NK1080BL-AF-F2	Outdoor bullet type Fire detection sensor : 2ea	49
K1080BL-AF-F2	Outdoor bullet type with Analog coaxial(EX-SDI) interface Fire detection sensor : 2ea Replaced 0.3Mega pixel camera	2
UHN6400-H16S	64ch Network Recorder HDD : 96TB Store around 4 months	6
WinRDS	Video Re-distribution server A real-time alarm sent to about 60 staff members in the event of fire	1



Major References – case study

Business Overview

- Around 440 visul fire detection cameras are installed to prevent fire and manage safety at EcoPro , Pohang 3 campus, which develops cathode materials for secondary batteries

Installation Effect

- Early detection of fire during welding process and it was extinguished earlier then all normal CCTV is replaced with visual fire detection cameras
- Installation is planned to expand to 5, 7 campuses (around more than 500)

Notes

- The 1st case to install 3rd generation visual fire detection camera which support AI features such as falling down, Intrusion detection as well as flame detection
- This campuses replaced other brand's similar camera with WEBGATE visual fire detection because the other brand's camreas couldn't detect fire when there's large fire broke out

Model Name	Description	Q'ty
NK2100BL-F1	Outdoor AI bullet type Fire detection sensor : 1ea	270
NK2100BL-F2	Outdoor AI bullet type Fire detection sensor : 2ea	105
NK1080D-F1	Indoor dome type Fire detection sensor : 1ea	42
UHN1600-H2-V2	16ch Network Recorder HDD : 16TB	24
UHN6400-H8	64ch Network Recorder HDD : 56TB	1
WinRDS	Video Re-distribution server A real-time alarm sent out in the event of fire	1

Major References – case study

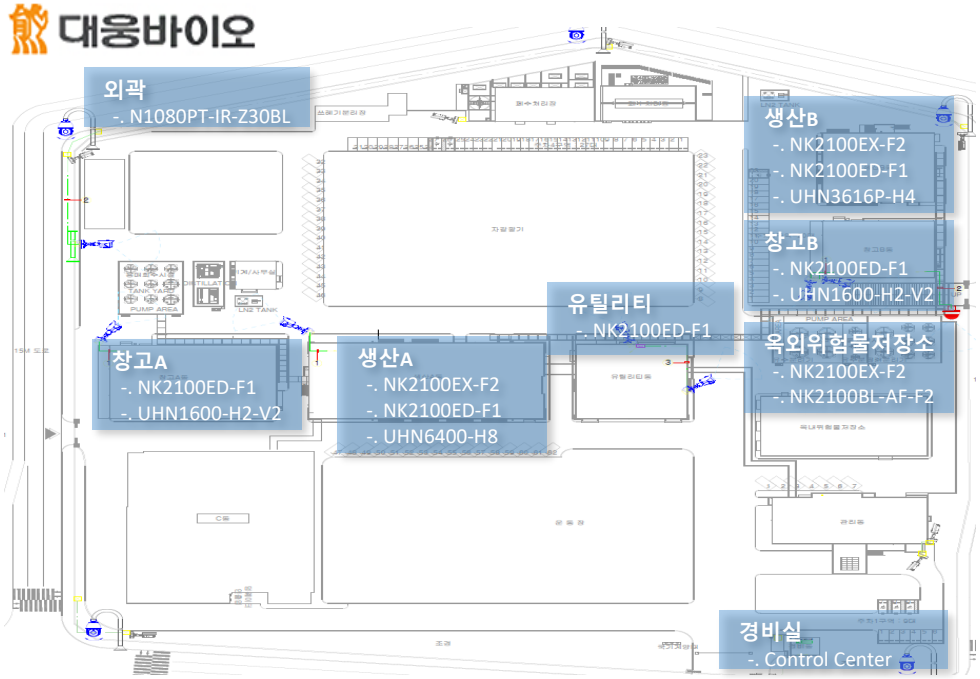
Business Overview

- Around 85 visual fire detection camera are installed at Daewoong Bio plant, domestic No.1 raw materials and drugs

Notes

- Total project cost : Around USD 0.4Mil
- The first installation case of The 3rd generation explosion proof AI type visual fire cameras (NK2100EX-F2)

Model Name	Description	Q'ty
NK2100EX-F2	EX proof AI type Fire detection sensor : 2ea	38
NK2100BL-AF-F2	Outdoor AI type Fire detection sensor : 2ea	14
NK2100ED-F1	Indoor AI type Fire detection sensor : 1ea	33
N1080PT-IR-Z30BL	Optical 30x zoom PTZ camera ½" High sensitivity low light sensor	5
UHN6400-H8 UHN3616P-H4 UHN1600-H2-V2	64/36/16ch Network Recorder HDD : 64/32/16TB	1 1 1
WinRDS	Video Re-distribution server A real-time alarm sent out in the event of fire	1



Major References – case study

Business Overview

- Around 250 visual fire detection cameras are installed in rental housing complexes of the Korea for fire prevention in electricity rooms and recycling area

Installation Effect

- At least 5 fire cases and early extinguishing during 6 months since the installation
- Training of internal staffs and implementation of preventive measure to prevent recurrence

Notes

- Public notice of guidelines for installation of visual fire detection cameras in recycling area of new apartment of LH from 2022
- Visual fire detection cameras will be installed in every recycling areas rental apartment chains nationwide

Model Name	Description	Q'ty
NK1080BL-F2	Outdoor bullet visual fire camera Fire detection sensor : 2ea	248
UHN1600-H6R	16ch Network Recorder HDD : 12TB	55

LH 한국토지주택공사

Major References – case study

Business Overview

- 36 visual fire detection cameras are installed at LG chemical's plant, a world-renowned chemical company

Notes

- Additional installation plan for LG's plant located in other area

Model Name	Description	Q'ty
NK1080BL-AF-F2	Outdoor bullet type Fire detection sensor : 2ea	36
UHN3616P-H4	36ch Network Recorder HDD : 40TB	2

LG화학

Product Information

✓ Standard Network

Model	NK1080BL-AF-F2	NK1080BL-F1	NK1080D-F1
Type	Bullet	Bullet	Dome
Sensor	1 /2.8" 2.1M Sony STARVIS CMOS	1 /2.8" 2.1M Sony STARVIS CMOS	1 /2.8" 2.1M Sony STARVIS CMOS
	2.7mm ~ 12mm, DC IRIS, Auto Focus	3.6mm	3.6mm
Flame detection sensor	2pcs	1pcs	1pcs
Dstance	30M	30M	30M
Angle	80 °	80 °	80 °
IR LED	30pcs	30pcs	24pcs
Features	3 stream, Profile-S, two-way audio	3 stream, Profile-S, two-way audio	3 stream, Profile-S, two-way audio
Power	DC12V / PoE	DC12V / PoE	DC12V / PoE
Operation environment	-10 ℃ ~ 50 ℃ / 0%RH ~ 80%RH	-10 ℃ ~ 50 ℃ / 0%RH ~ 80%RH	-10 ℃ ~ 50 ℃ / 0%RH ~ 80%RH

NK2100BL

NK1080BL

✓ Pro AI Network

Model	NK2100BL-AF-F2	NK2100ED-F1	NK2100EX-F2
Type	Bullet	Dome	Ex-proof level
Sensor	1 /2.8" 2.1M Sony STARVIS CMOS	1 /2.8" 2.1M Sony STARVIS CMOS	1 /2.8" 2.1M Sony STARVIS CMOS
	2.7mm ~ 12mm, DC IRIS, Auto Focus	3.6mm	3.6mm
Flame detection sensor	2pcs	1pcs	2pcs
Dstance	30M	30M	30M
Angle	80 °	80 °	80 °
IR LED	48pcs	24pcs	2 Super IR
Features	3 stream, Profile-S, two-way audio	3 stream, Profile-S, two-way audio	3 stream, Profile-S, two-way audio
AI Features	Fall down, Line cross, Intrusion, Loitering	Fall down, Line cross, Intrusion, Loitering	Fall down, Line cross, Intrusion, Loitering
Power	DC12V / PoE	DC12V / PoE	DC12V / PoE
Operation environment	-10 ℃ ~ 50 ℃ / 0%RH ~ 80%RH	-10 ℃ ~ 50 ℃ / 0%RH ~ 80%RH	-10 ℃ ~ 50 ℃ / 0%RH ~ 80%RH

NK1080D, 2100ED

NK2100EX

R&D based Organization

R&D members with more than 24 years experiences in the industry

Self – design / development of Hardware, Software and Firmware along with own Production capability for Premium range products

1997~2008

1997	Established WEBGATE Co.,Ltd
1999	Released Network camera(WebEye)
2000	Released world's first camera-embedded DVR
2004	Awarded for world-class commodity producer (by Small & Medium biz administration)

2009~2012

2009	The nation's first 16ch H.264 D1 real-time DVR release
2011	Merged with Daemyung Corporation
2012	The world's first 16ch HD-SDI release

2013~2015

2013	Compliance Leadership Award(HDcctv Alliance) for the 3rd consecutive year
	World's first Full-Frame 16ch DVR(PoC/CoC, EX-SDI, RAID all-in-one) release
2014	World's first smart fire detection(flame / heat) camera release
2015	World's first 8ch Optic multiplexer release

2016~Present

2016	Supply type All in One DVR release
2017	Acquired patent registration for Fire Detection camera and Remote Control of DVR
	World's first Universal DVR release
2018	Network camera, NVR full lineup
	Developed EX-SDI 2.0-PoC/CoC platform
2019	4M QHD lineup
	Awarded Top of solution by "Security Award Korea"
2020	Launching as independent corporation as WEBGATE INC.

- Thank You -

www.webgateinc.com

Sales & Technical Inquiry : jimmy@webgateinc.com
sean@webgateinc.com