2011　2013　2012

"Leadership Award"

HD-CCTV Products & Solutions

EN 2.1

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HD-CCTV
Products
& Solutions
Premium to your security

2014

2014

WEBGATE

WEBGATE

HD-CCTV / WEBGATE / PREMIUM TO YOUR HD-CCTV / WEBGATE / PREMIUM TO YOUR HD-CCTV / WEBGAT
VR / WEBGATE / PREMIUM TO YOUR H.264 DVR / WEBGATE / PREMIUM TO YOUR H.264 DVR / PREMIUM
R / WEBGATE / PREMIUM TO YOUR HD IP/NVR / WEBGATE / PREMIUM TO YOUR HD IP/NVR / WEBGATE / F
MS / WEBGATE / PREMIUM TO YOUR CMS / WEBGATE / PREMIUM TO YOUR CMS / WEBGATE / PREMIUM

/ PREMIUM TO YOUR HD-CCTV / WEB
PREMIUM TO YOUR H.264 DVR / WEI
EMIUM TO YOUR HD IP/NVR / WEBGA
PREMIUM TO YOUR CMS / WEBGATE

WEBGATE
HD-CCTV
SOLUTION
PROVIDER

Enjoy the Genuine HD Security
with WEBGATE HD-CCTV Solution.

Philosophy,
Vision,
& Mission

FULL HD
1080p

WEBGATE Philosophy : We value the manifestation of future trends.
Based on this, Webgate is the leading company in the world of HD Video
surveillance market and continuing to serve the most convenient and secure
product line humanity has ever known.
Welcome to a new... World of Webgate

Established in 1997, Daemyung Enterprise Co., Ltd. WEBGATE division, has been continuously tried to keep the promise of
providing the best and the most innovative products in the world of security. With a world-class technology and highly reliable
products, WEBGATE is currently leading the world of security market.
We will always keep the promise to meet the changes in the market and provide you the best.

History of
WEBGATE

1998. 3
VCU | Development of Image processing system of UAV (Unmanned Aerial Vehicle) for the Korean Army

1999. 5
WebEye-E10 | Development of WebEye series, The world's first Wavelet base multi streaming IP Camera

2000. 1
i-Rec C104 | Development of i-Rec C104, The world's first DVR integrating camera

2001. 1
M360, DVrS | Development of DVrS, The world's first 108ch NVR solution

2002. 2
WebEye-MC10 | The world's first 3GPP real-time MPEG-4 streaming camera

2003. 5
DS412 | The world's first Hybrid DVR(Analog 4ch + IP 12ch) using WEBGATE's own differential Wavelet image process

2003. 10
DS1600Q | Development of DS1600Q 16ch Wavelet DVR using WEBGATE own differential Wavelet image processing

2005. 5
Control Center | Development of Control Center CMS(Central Management Software) supporting 1024 unit registration, 6 monitors and virtual matrix etc.

2007. 3
B101M | Development of MPEG-4 IP products supporting 8 different multi streams

2007. 9
MD1600H | Development of MD1600H The world's first 16ch D1 real-time standalone DVR

2007. 10
MD3200M | Development of MD3200M The world's first 32ch 2CIF real-time standalone DVR

2008. 10
NVS04S | Development of NVS04S The world's first 16ch Mega-Pixel Standalone type NVR

2010. 11
C720B | 720p HD-SDI camera, The world's first certified product by HDcctv Alliance.

2010. 11
RP102 | HD-SDI repeater, The world's first certified product by HDcctv Alliance

2011. 2
C1080B | 1080p HD-SDI camera, The world's first certified product by HDcctv Alliance

2011. 3
HD400H | 4ch Full-HD DVR, The world's first certified product by HDcctv Alliance

2011. 7
HD800H | 8ch Full-HD DVR, The world's first certified product by HDcctv Alliance

2012. 5
SDI2HDMI | HD-SDI to HDMI convertor, The world's first certified product by HDcctv Alliance

2012. 5
HD1600M | 16ch Full-HD DVR, The world's first certified product by HDcctv Alliance

2012. 12
HDC400M | 4ch Compact size Full-HD DVR Certified by HDcctv Alliance

2013. 3
OPT-TX/RX | Fiber-Optic Converter 4 models The world's first certified product by HDcctv Alliance

2013. 10
C1080 Series | 1080p HD-SDI camera 11 models Certified by HDcctv Alliance

2013. 10
C1080P Series | 1080p PoC HD-SDI camera 12 models Certified by HDcctv Alliance The world's first certified product by HDcctv Alliance

2013. 11
Leadership Award | Won "Compliance Leadership Award" from HDcctv Alliance 3 consecutive years in 2011, 2012, 2013

2013. 11
HD1600F-PDR | The world's first PoC/CoC 16ch Full-HD DVR Full-Frame recording, Built-in PoC/CoC, DoubleReach™, RAID function. The world's first certified product by HDcctv Alliance

2013. 12
HDC400F-PD | PoC/CoC 4ch Full-HD DVR Full-Frame recording, Built-in PoC/CoC function Certified by HDcctv Alliance

2013. 12
HDC801F-PD | PoC/CoC 8ch Full-HD DVR Full-Frame recording, Built-in PoC/CoC function Certified by HDcctv Alliance

Patents

1999.10 | Method of image processing for monitoring camera

2000. 3 | Method and network expression system of embedded device

2003. 3 | Method and multi channels support device of digital Image system

2003. 8 | 2D Wavelet conversion device

2007.12 | Internet Protocol-based surveillance system and the method to assign internet protocol address. Management method of network camera

2010. 6 | Method of hard disk driver mount

2010. 6 | IR LED control and IR LED camera

2012. 7 | Using SDI Compressed video transferring system and the way

2013. 12 | SNS Relay Service for Embedded device

2013. 4 | Design of camera front case

Patents Pending

Effective management method for memory allocation and cancellation

WEBGATE won the "Compliance Leadership Award" for 3 consecutive years by 2013

PRODUCT LINEUP

HD-CCTV One Cable **Solution** · · · 09p

HD-CCTV Ultimate Performance PoC **DVR** · · · 17p

Model	OS / Codec	Channel	Display / Resolution	Recording / Resolution	Audio In/Out	Monitor Output	HDD	External Storage	USB	RAID	PoC/CoC	Double Reach	Page
HD1600F-PDR	Linux / H.264 High Profile, JPEG	16ch	480/400fps@1080p	4 / 1	HDMI	5	Max. 128TB (NS04R) Max. 32TB (eSATA)	2	O	O	O	41p
HD1600M-PDR		16ch	120/100fps@1080p	4 / 1	HDMI	5	Max. 128TB (NS04R) Max. 32TB (eSATA)	2	O	O	O	43p
HD800F-PDR		16ch	240/200fps@1080p	4 / 1	HDMI	5	Max. 32TB (eSATA)	2	O	O	O	45p
HD400F-PDR		4ch	120/100fps@1080p	4 / 1	HDMI	5	Max. 32TB (eSATA)	2	O	O	O	47p
HDC801F-PD		8ch	240/200fps@1080p	4 / 1	HDMI	2	Max. 32TB (eSATA)	2	-	O	O	49p
HDC400F-PD		4ch	120/100fps@1080p	4 / 1	HDMI	1	Max. 32TB (eSATA)	2	-	O	O	51p

All models acquired HDcctv certificate

HD-CCTV High Performance **DVR**

Model	OS / Codec	Channel	Display / Resolution	Recording / Resolution	Audio In/Out	Monitor Output	HDD	External Storage	USB	RAID	PoC/CoC	Double Reach	Page
HD1600F-R	Linux / H.264 High Profile, JPEG	16ch	480/400fps@1080p	4 / 1	HDMI	5	Max. 128TB (NS04R) Max. 32TB (eSATA)	2	O	-	-	53p
HD1600F		16ch	480/400fps@1080p	4 / 1	HDMI	5	Max. 128TB (NS04R) Max. 32TB (eSATA)	2	-	-	-	55p
HDC1601M		16ch	120/100fps@1080p	4 / 1	HDMI	2	Max. 32TB (eSATA)	2	-	-	-	57p
HD800F-R		8ch	240/200fps@1080p	4 / 1	HDMI	5	Max. 32TB (eSATA)	2	O	-	-	59p
HDC801F		8ch	240/200fps@1080p	4 / 1	HDMI	2	Max. 32TB (eSATA)	2	-	-	-	61p
HDC801H		8ch	120/100fps@1080p	4 / 1	HDMI	2	Max. 32TB (eSATA)	2	-	-	-	63p
HDC400F		4ch	120/100fps@1080p	4 / 1	HDMI	2	-	2	-	-	-	65p

All models acquired HDcctv certificate

HD-CCTV **Storage** · · · 67p

Model	Max Capacity	HDD Bay	RAID	Host I/F	Power Supply	Page
NS04R	128TB	4	1, 5, 10	Giga Ethernet	220W Power w/PFC	69p
ES0104	16TB	4	0, 1, 3, 5, 10, LARGE	eSATA	220W power w/PFC	71p
ES0212	16TB	12	0, 1, 10(1E), 3, 5, 6 and JBOB	eSATA	400Wx2 redundant power w/PFC	73p

HD-CCTV **Camera** · · · 75p

Model	Image Seonsor	Resolution	Lens	LEDs	Function	Auto Focus	IP66	Power	Page
C1080B	1/3" 2.1MP CMOS	30/25fps@1080p 60/50fps@720p	C/CS Mount	-	Suffix P models : PoC (Power over Coax) CoC (Control over Coax) Common : 3DNR / WDR / BLC / TDN OSD / Anti-Motion Blur / Anti-Flicker / De-Fog / AGC / Privacy Masking	-	-	DC12V	89p
C1080PBM				-		-	-	PoC / DC12V	91p
C1080PD C1080D			2.8~11mm F1.4 DC Iris Lens	-		-	-	PoC AC24V / DC12V	93p
C1080PD-IR C1080D-IR				24		-	-	PoC AC24V / DC12V	95p
C1080PD-AF C1080D-AF				-		O	-	PoC AC24V / DC12V	97p
C1080PD-IR-AF C1080D-IR-AF				24		O	-	PoC AC24V / DC12V	99p
C1080PVD C1080VD				-		-	O	PoC AC24V / DC12V	93p
C1080PVD-IR C1080VD-IR				24		-	O	PoC AC24V / DC12V	95p
C1080PVD-AF C1080VD-AF				-		O	O	PoC AC24V / DC12V	97p
C1080PVD-IR-AF C1080VD-IR-AF				24		O	O	PoC AC24V / DC12V	99p
C1080PBL-IR18 C1080BL-IR18				18		-	O	PoC AC24V / DC12V	101p
C1080PBL-IR18-AF C1080BL-IR18-AF				18		O	O	PoC AC24V / DC12V	101p
C1080PBL-IR48-AF C1080BL-IR48-AF				48		O	O	PoC AC24V / DC12V	101p
C1080PT-Z20*	1/2.8" 2.1MP CMOS	30/25fps@1080p 60/50fps@720P	20x Optical Zoom Lens	-	3DNR / WDR / BLC / OSD(RS485) Preset / Scan / Pattern / Group	O	O	AC24V	103p
C1080PT-Z20F*				-		O	-	AC24V / DC12V	103p

All models acquired HDcctv certificate (except * marked models)

HD-CCTV **Converter & Etc** · · · 105p

Model	Feature	Page
RP101P	1ch PoC Repeater for HD-SDI	113p
PS101P	1ch Power Supply for PoC Devices	113p
DR101P-TX	1ch DoubleReach Transmitter for HD-SDI	113p
DR101P-RX	1ch DoubleReach Receiver for HD-SDI	115p
RP102	1ch HD-SDI to 2ch HD-SDI Repeater	115p
SDI2HDMI	1ch HD-SDI to 1ch HDMI Converter	117p
HDMI2SDI*	1ch HDMI to 1ch HD-SDI Converter	117p
SD2HD*	6ch CVBS to 1ch HD-SDI Converter	117p

Model	Feature	Page
HD2SD	1ch HD-SDI to 1ch CVBS Converter	119p
OPT-TX4-RS485P	4ch HD-SDI to Optic Converter supporting PoC function	115p
OPT-TX1-RS485U(C)	1ch HD-SDI to Optic Converter	119p
OPT-RX1-RS485U(C)	1ch Optic to HD-SDI Converter	119p
OPT-TX4-RS485U(C)	4ch HD-SDI to Optic Converter	121p
OPT-RX16-RS485U(C)	16ch Optic to HD-SDI Converter	121p
WKC-100*	Remote Control Keyboard	121p

All models acquired HDcctv certificate (except * marked models)

PRODUCT LINEUP

Premium to your security **WEBGATE**

HD IP / NVR ••• 123p

Model	Feature	Page
B101M	1ch video server with MPEG-4	125p
D101M	1ch video decoder with MPEG-4	127p
HDC730C	1/3" 1.3M CMOS, 1280x720(720p 30fps), PoE, MPEG 4	129p

Model	Feature	Page
SPD360M	1/4" Optical 36x CCD, D1 x30(25)fps, MPEG 4	131p
NVS04S	16ch Network Video Recorder with 4 hot-swap SATA HDD	133p

H.264 Standalone DVR ••• 135p

Model	OS / Codec	Channel	Display	Recording / Resolution	Audio In/Out	Monitor Out	HDD / ODD	External Storage	USB	Page
MH3200M	Linux / H.264, JPEG	32ch	960/800fps	960/800fps@2CIF	16 / 1	4 BNC + 2 DVI	4 / 1	Max. 8TB(eSATA) Max. 32TB(NVS04R)	2	137p
MH1600H		16ch	480/400fps	480/400fps@D1	16 / 1	4 BNC + 2 DVI	4 / 1	Max. 8TB(eSATA) Max. 32TB(NVS04R)	2	139p
MH1600M		16ch	480/400fps	480/400fps@2CIF	16 / 1	2 BNC + 1 DVI	4 / 1	Max. 8TB(eSATA) Max. 32TB(NVS04R)	2	141p
EH1600L		16ch	480/400fps	480/400fps@CIF	4 / 1	2 BNC + 1 DVI	2 / 1	Max. 8TB(eSATA)	2	143p
EH800M		8ch	240/200fps	240/200fps@2CIF	4 / 1	2 BNC + 1 DVI	2 / 1	Max. 8TB(eSATA)	2	145p
EH400H		4ch	120/100fps	120/100fps@D1	4 / 1	2 BNC + 1 DVI	2 / 1	Max. 8TB(eSATA)	2	147p
LH1600C		16ch	480/400fps	480/400fps@CIF	4 / 1	2 BNC + 1 VGA	2 / 0	-	2	149p
LH800L		8ch	240/200fps	240/200fps@2CIF	4 / 1	2 BNC + 1 VGA	2 / 0	-	2	151p

Software Solution ••• 153p

Model	Units	Decoding Performance	Monitor	Simultaneous Monitoring Channels	Virtual matrix	e-Map	Rule-based auto-action	Action Log	External Controller	Page
Control Center Standard	1024	8 HD	2	128	No	Yes	No	No	USB joystick, Jog / Shuttle	169p
Control Center Pro	1024	12 HD	6	256	No	Sub-map	Yes	Yes	USB joystick, Jog / Shuttle, WKC-100	169p
Control Center Enterprise	1024	12 HD	4 + 50	3456	Yes	Sub-map	Yes	Yes	USB joystick, Jog / Shuttle, WKC-100	169p
WinRDS	Video Streaming Re-Distribution Solution, 512Channel Input, 512Channel Output, Up to 100 User registration									171p
WebEye	Mobile App for iOS and Android, 16Units Registration, 4Split-Screen Live Monitoring & PTZ Control, HD Resolution, Alarm and System Event Log, WinRDS can be registered									173p

Solution Guides ••• 175p
Installation Case ••• 185p
HD-CCTV Tech Note ••• 203p
Ordering Information ••• 229p

Easy Installation
True Plug & Play
PoC / CoC
DoubleReach™

HD-CCTV
One Cable
Solution

The World's First HD-CCTV One Cable Solution including DVR, Camera, Converter models
One Cable Solution for Full-HD video transmission, Camera power supply & control via Coaxial cable

One Cable **Solution**

minus

minus

About One Cable Solution - Camera Power supply & Control through coax cable

One Cable Solution provides camera power through coaxial cable, so installation of camera power supply is not necessary. Also, DVR can transmit camera control data through same co-axial cable, so camera's all OSD menu control is possible. For AF camera models, Zoom/Focus, One-push auto focus control can be additionally supported. One Cable Solution provides easy installation at actual installation sites. And besides, because DVR or CMS can control camera, it supports efficient management of video surveillance system at the same time.

PoC Camera PoC DVR

Power (PoC) + RS485 (CoC)

HD1080p HD-SDI Video
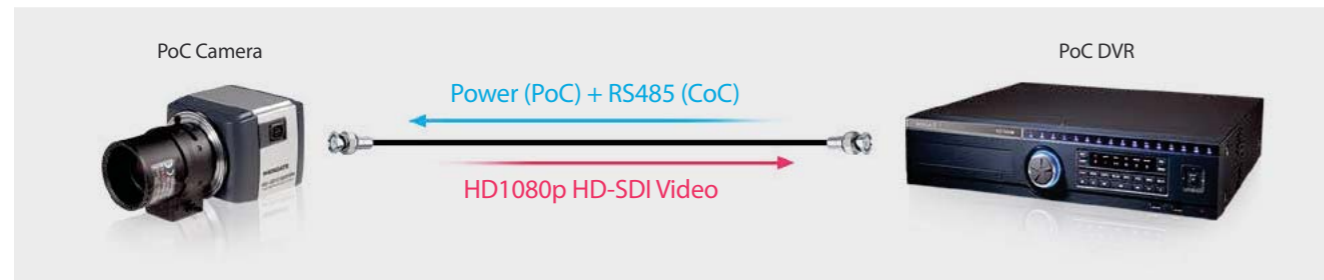
Easy Installation and Maintenance using PoC/CoC function
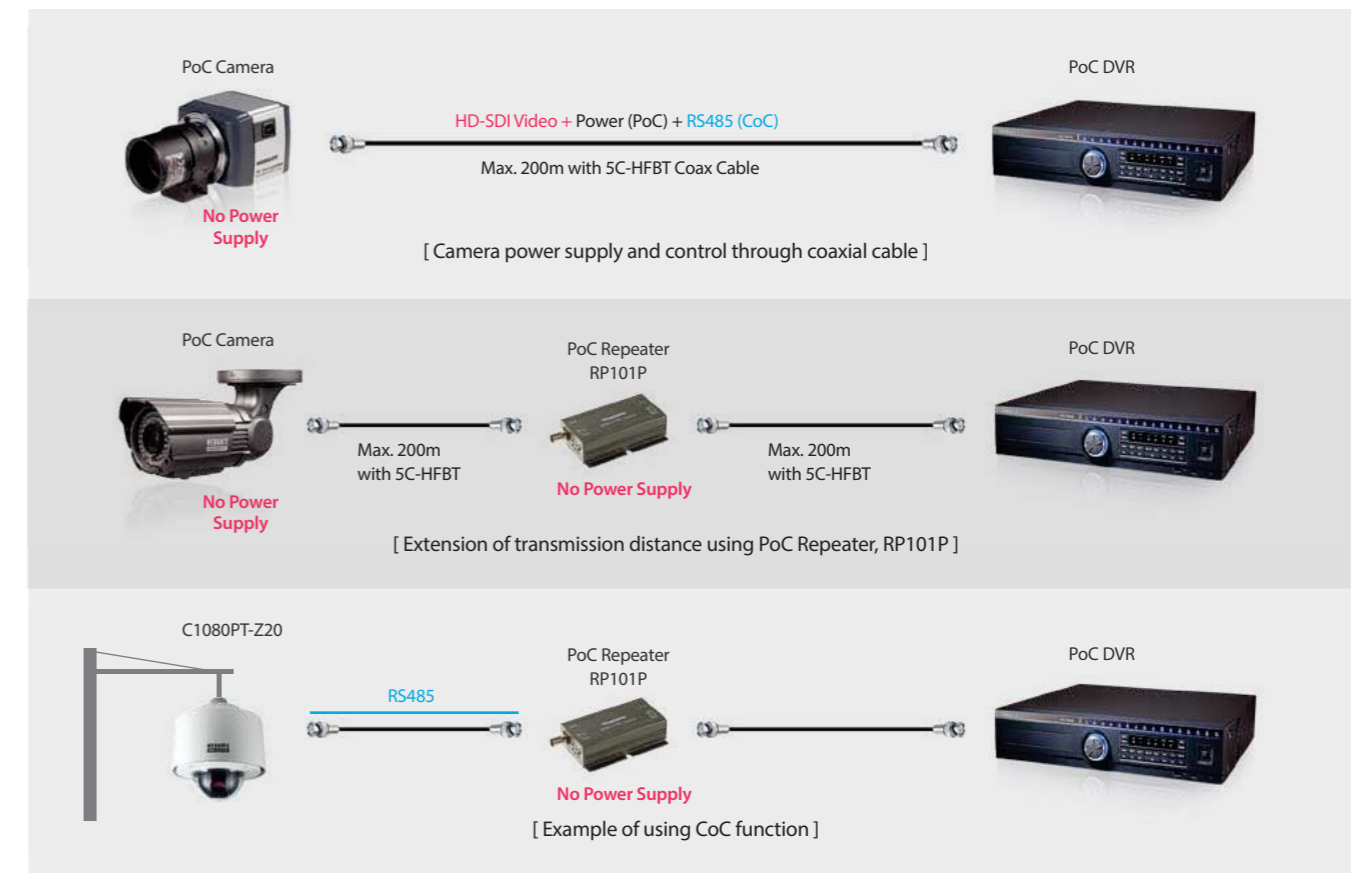
PoC(Power over Coax)

The Ultimate performance PoC DVR series supply power to cameras through coaxial cables, so cameras don't need additional installation for power supply. Besides, DVR provides auto-detection of PoC/Non-PoC camera, supports over-current alarm and its protection, status of PoC operation. By using WEBGATE's recommended 5C-HFBT coaxial cable, PoC cameras can transmit HD-SDI video up to 200m. Moreover, PoC repeater RP101P can be used to extend the transmission distance. RP101P is a repeater which supports PoC function and because its power is supplied from DVR, it can be located anywhere without any restriction of installation.

- DVR provides power to camera through coaxial cable
- Cameras do not require additional installation for power supply

CoC(Control over Coax)

Not only PoC function but also camera control can be executed through coaxial cable. Cameras do not need additional RS-485 cable to control camera, so PoC camera's OSD menu control, Zoom/Focus control and firmware upgrade can be executed by coaxial cable. In case of PTZ dome which requires somewhat higher power consumption, only CoC function can be utilized interfaced with RP101P.

- DVR transmits camera control signal through coaxial cable
- Supports OSD menu, Zoom/Focus control and camera firmware upgrade

PoC Camera PoC DVR

HD-SDI Video + Power (PoC) + RS485 (CoC)

Max. 200m with 5C-HFBT Coax Cable

No Power Supply

[Camera power supply and control through coaxial cable]

PoC Camera PoC Repeater RP101P PoC DVR

Max. 200m with 5C-HFBT

Max. 200m with 5C-HFBT

No Power Supply

No Power Supply

[Extension of transmission distance using PoC Repeater, RP101P]

C1080PT-Z20 PoC Repeater RP101P PoC DVR

RS485

No Power Supply

[Example of using CoC function]

One Cable **Solution**

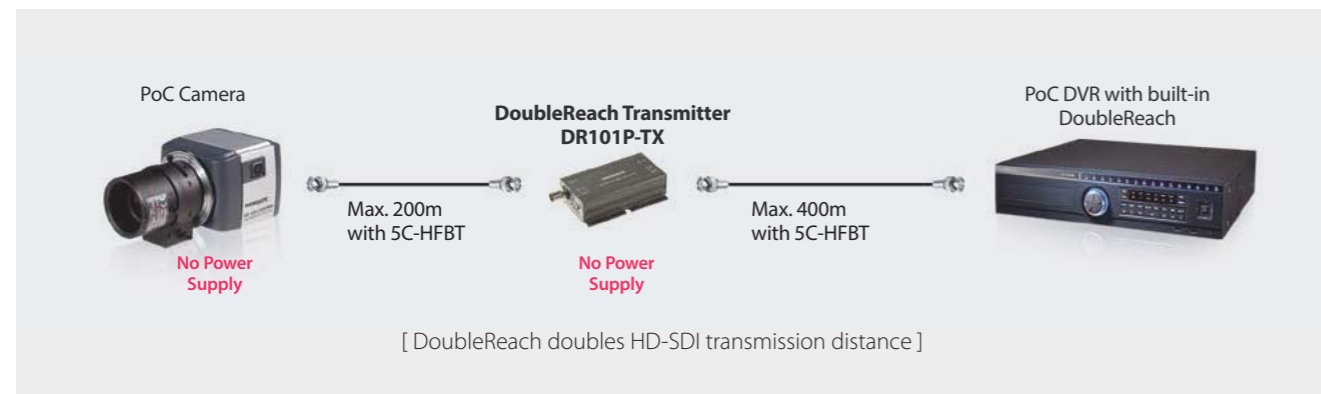## HD-SDI Transmission distance extension using DoubleReach™ function

The Ultimate performance PoC DVR's DoubleReach™ is a new technology for HD-SDI video transmission. This technology converts Full-HD video to the undistinguishable video level by naked eye, and extends HD-SDI transmission distance by two times (up to 400m) when it compared with conventional HD-SDI.
HD DVR models which support DoubleReach can receive DoubleReach video for odd channels without additional equipment, and users can easily relocate channels which are displayed on multi-screen. To use this function, camera needs DoubleReach transmitter DR101P-TX, and it can work together with PoC repeater RP101P.

This technology is especially useful when it comes to upgrading existing system. Because DoubleReach™ technology changes the HD-SDI's video data from 1.5Gb/s to 270Mb/s, old existing cable can be effectively used to transmit HD-SDI signal and, making the users to configure HD video surveillance system with ease.
To use this function, camera side needs DoubleReach™ transmitter of DR101P-TX, and PoC repeater of RP101P can be worked together to extend video transmission distance.

- Supports up to 400m HD-SDI video transmission using 5C-HFBT(RG-6) cable
- It is effective when the existing cable's performance is low or its length is over 200m
- Can be interfaced with PoC repeater RP101P

PoC Camera   **DoubleReach Transmitter DR101P-TX**   **PoC DVR with built-in DoubleReach**

Max. 200m with 5C-HFBT   Max. 400m with 5C-HFBT

No Power Supply   No Power Supply

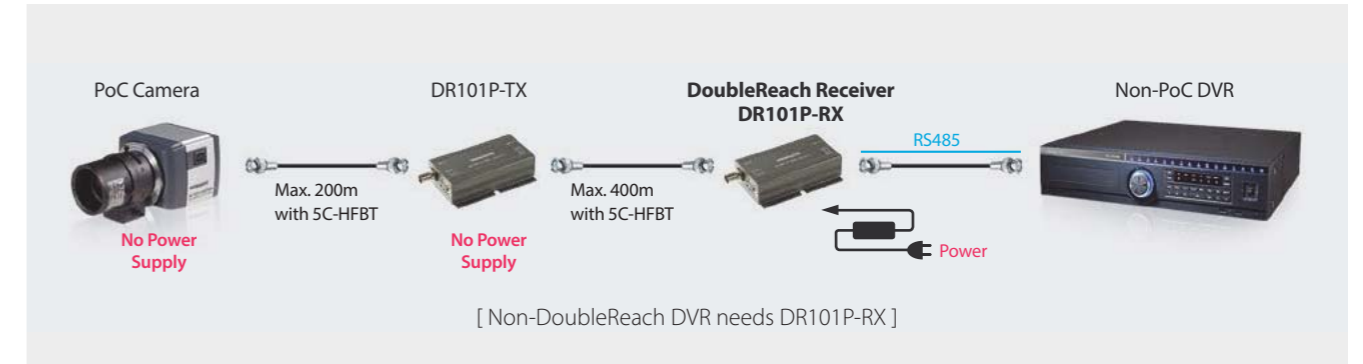[DoubleReach doubles HD-SDI transmission distance]

PoC, DoubleReach™ Converters : RP101P, PS101P, DR101P-TX, DR101P-RX, OPT-TX4-RS485P

PoC Repeater

PoC(Power over Coax) repeater, RP101P extends the HD-SDI video transmission distance between PoC camera and PoC DVR. Because RP101P also supports CoC(Control over Coax) function, operator can control camera's all functions (such as OSD menu, Zoom/Focus control and Firmware upgrade) through DVR.

DoubleReach™ Transmitter & Receiver

DoubleReach Transmitter, DR101P-TX can be directly connected to a DVR which support the function, or can be connected to DoubleReach Receiver, DR101P-RX. DoubleReach function extends the HD-SDI video transmission distance by two times. Besides, DoubleReach converters support PoC & CoC functions at the same time.

PoC Camera   DR101P-TX   **DoubleReach Receiver DR101P-RX**   Non-PoC DVR

RS485

Max. 200m with 5C-HFBT   Max. 400m with 5C-HFBT

No Power Supply   No Power Supply   Power
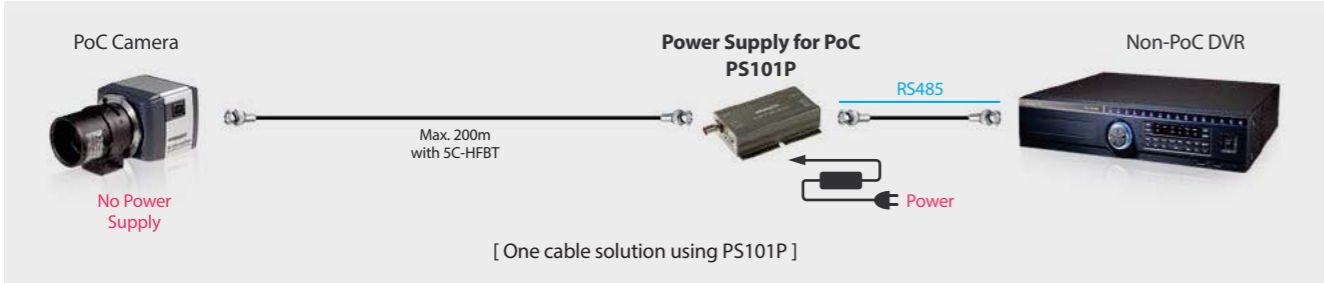
[Non-DoubleReach DVR needs DR101P-RX]

PoC DVR supplies necessary power to PoC Repeater and DoubleReach Transmitter, so they do not require additional power installation basically.
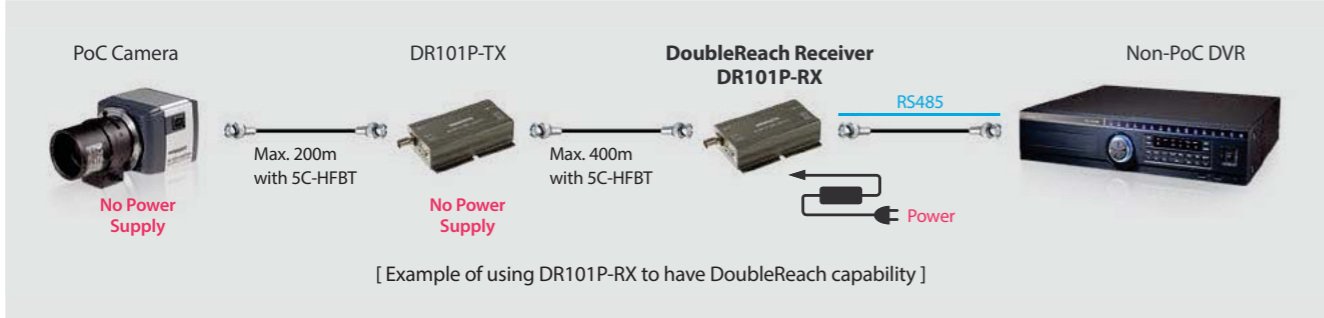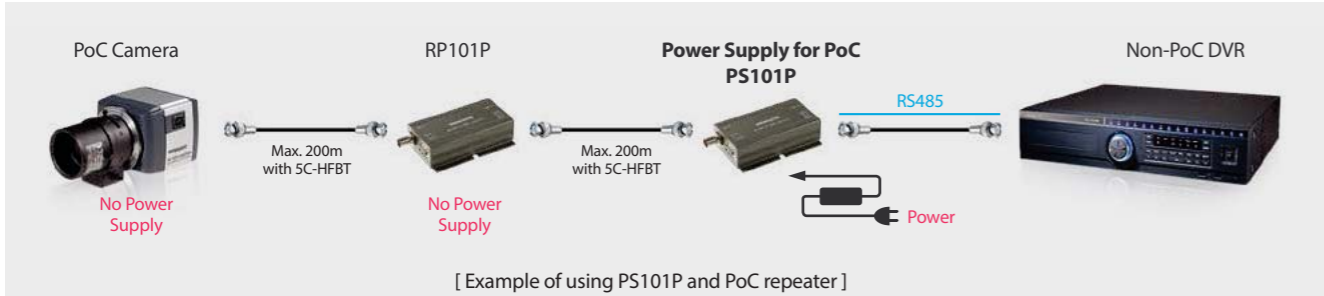
One Cable **Solution**

Premium to your security

WEBGATE

How to use One Cable Solution using Non-PoC DVR

PS101P is power supply that supply power to PoC devices. If using PS101P, existing Non-PoC DVR can use One Cable Solution with ease.
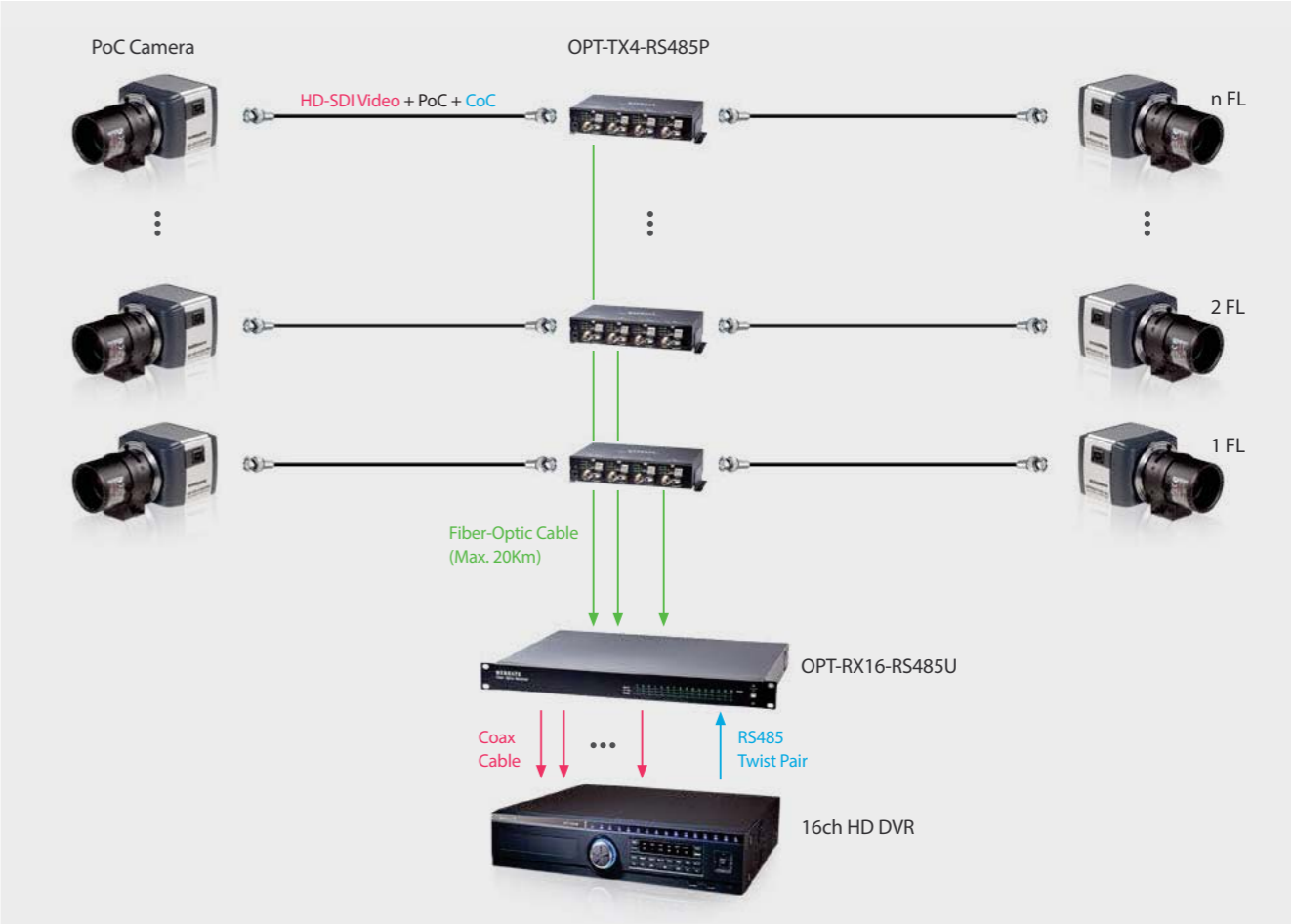

PoC Camera | Power Supply for PoC PS101P | Non-PoC DVR

No Power Supply | Max. 200m with 5C-HFBT | RS485 | Power

[One cable solution using PS101P]

PS101P can be interfaced with PoC Repeater and you can use DoubleReach function using DR101P-RX.

PoC Camera | RP101P | Power Supply for PoC PS101P | Non-PoC DVR

No Power Supply | Max. 200m with 5C-HFBT | No Power Supply | Max. 200m with 5C-HFBT | RS485 | Power

[Example of using PS101P and PoC repeater]

PoC Camera | DR101P-TX | DoubleReach Receiver DR101P-RX | Non-PoC DVR

No Power Supply | Max. 200m with 5C-HFBT | No Power Supply | Max. 400m with 5C-HFBT | RS485 | Power

[Example of using DR101P-RX to have DoubleReach capability]

Fiber-Optic Transmitter supporting power to PoC cameras

If Fiber-optic transmitter of OPT-TX4-RS485P which can supply necessary power to PoC cameras were used for large-scale surveillance sites, you can easily design and configure the system.
OPT-TX4-RS485P supplies power to up to 4 PoC cameras using its input power, and it uses fiber-optic cable for long-distance HD-SDI video transmission.

PoC Camera | OPT-TX4-RS485P

HD-SDI Video + PoC + CoC | n FL

2 FL

1 FL

Fiber-Optic Cable (Max. 20Km)

OPT-RX16-RS485U

Coax Cable | RS485 Twist Pair

16ch HD DVR

16

Full-HD Video Recorder
H.264 / Multi-Streaming
Broadcast quality
PoC/CoC
RAID / DoubleReach™

Full-frame recording/playback, broadcasting class video quality using H.264 High-profile Codec, and network multi-streaming provide the best way to build High definition surveillance system.

HD-CCTV
DVR

HD-CCTV DVR **Features**

PoC/CoC, DoubleReach™ Support for One Cable Solution

PoC(Power over Coax) Support
Auto Detection of PoC Camera / Power supply to Camera
PoC DVR can supply camera power through coaxial cable. DVR can provide maximum 16W per channel, and DVR can supply power to PoC repeater within the power specifications.
If PoC camera or PoC repeater is connected to DVR through co-axial cable, DVR automatically detect the devices, and start to supply power to PoC devices. DVR has over-current protection function per each channel and also shows the working condition of PoC operating.
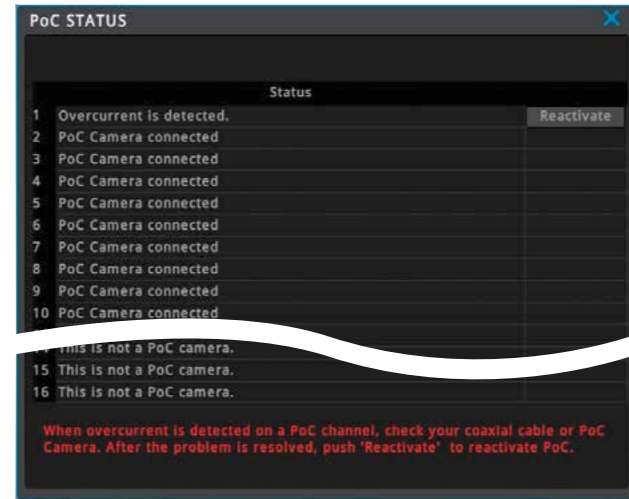

CoC(Control over Coax) Support
Automatic setting of communication / Camera Control
PoC DVR can transmit control commands to PoC camera through coaxial cable.
In case of Non-PoC DVR, RS485 cable installation, protocol, ad-dress, baud rate, data bit, parity bit, stop bit settings are neces-sary. But, in case of PoC camera, these settings are unnecessary. By merely assigning CoC at PTZ menu, DVR can control all cam-era functions with 57,600bps baud rate.


As you can see from below Figure, if PoC cameras are connected to a PoC DVR by coaxial cable, PoC DVR supplies necessary power to cameras and additional power installation is not necessary. Also, you can control whole camera menu through DVR or CMS without additional RS485 cable installation and it makes simple design and to build efficient video surveillance system.
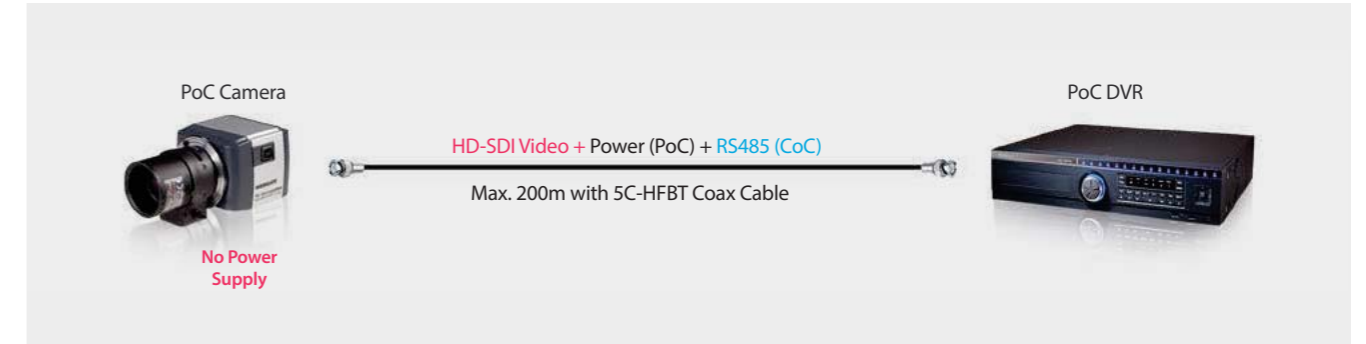

DoubleReach™ Support – Built-in DoubleReach Receiver
DoubleReach™ is the latest HD-SDI technology which converts Full-HD video to the undistinguishable video quality level by naked eye and transmit the video up to 400m through 5C-HFBT coaxial cable. DoubleReach supporting HD DVR models can receive DoubleReach video for odd channels without additional equipment and users can easily relocate channels which are displayed on multi-screen. Also, DoubleReach technology includes PoC/CoC function, so DoubleReach transmitter's power can be supplied from DVR.
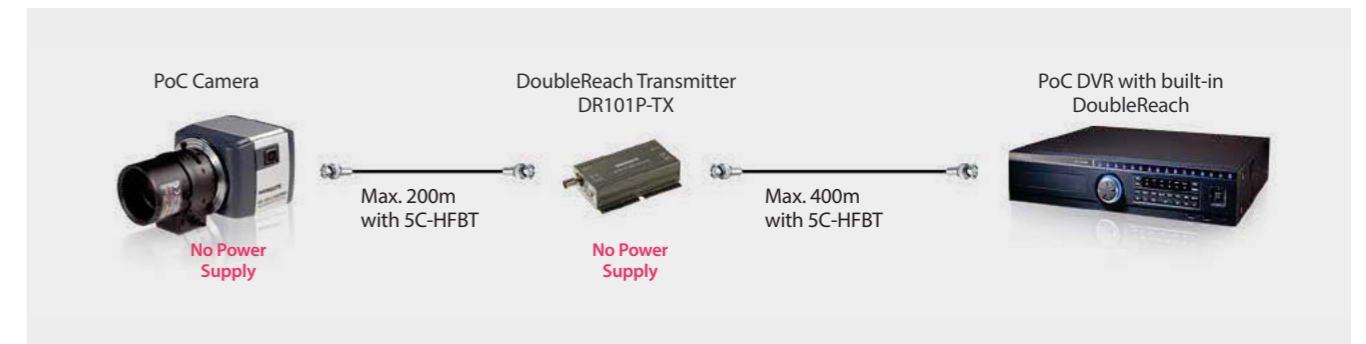
HD-CCTV DVR **Features**

Broadcasting class video quality using H.264 High-profile Codec
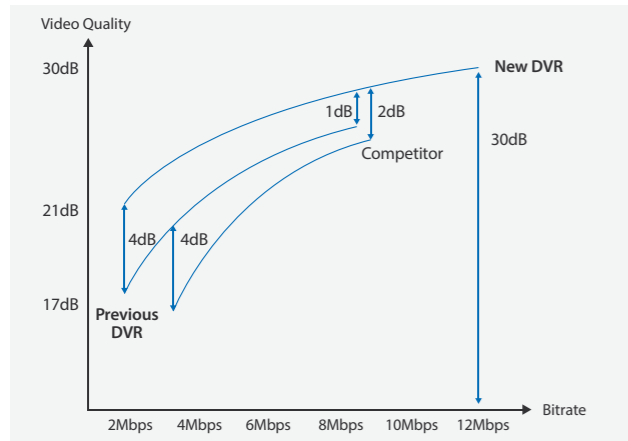
HD DVR series adopted H.264 High-profile Codec, and it shows better video compression performance through overall rage of bitrate when it compared with competitor's H.264 Main-profile or H.264 Base-profile. Especially, at lower bitrate(Less than 4Mbps) section, our HD DVR needs only half of bitrate in order to show similar video quality level.

Moreover, because HD DVR allows video quality setting up to 12Mbps, customers can get the best quality recording under an environment of complicated or a lot of movement.

Webgate's video image

Competitor's video image

Full-Frame Recording

The Ultimate performance PoC DVR series support 30fps recording of 1080p Full-HD video per each channel, and customers can configure the recording condition from 1fps to 30fps per each channel. Places such as casino, racetrack and bank requires all frame recording, and we can provide full-frame video recording without any frame missing.
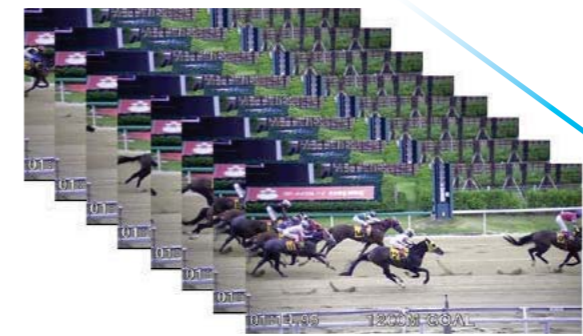
Full-Frame Recording   Non Full-Frame Recording

Full-Frame Playback Using AMD (Advanced Multi-channel Decoding)

Full-frame recorded video can be played by full-frame at every playback mode. WEBGATE's AMD(Advanced Multi-channel Decoding) technology controls video decoder performance according to the split-screen modes, so DVR can provide full-frame playback not only at single screen but at 16 split-screen mode.

Recorded video:
1920 x 1080

Single screen playback: 16 split screen Playback
30fps decoding with 1920 x 1080 size   480fps decoding with 480 x 270 size
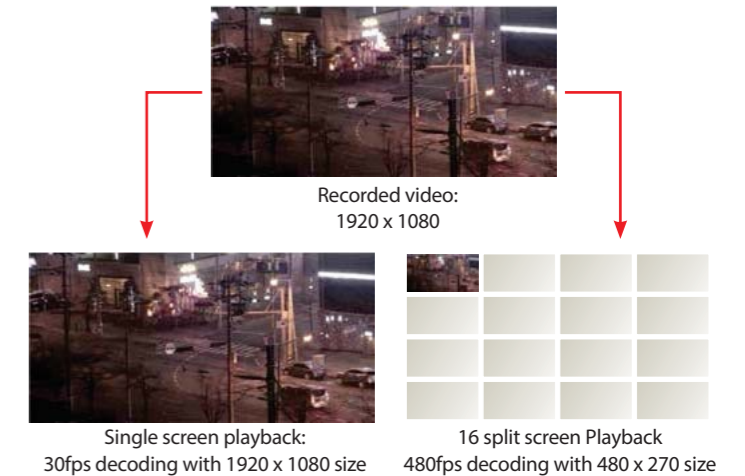
HD-CCTV DVR **Features**

Convenient and versatile Search features

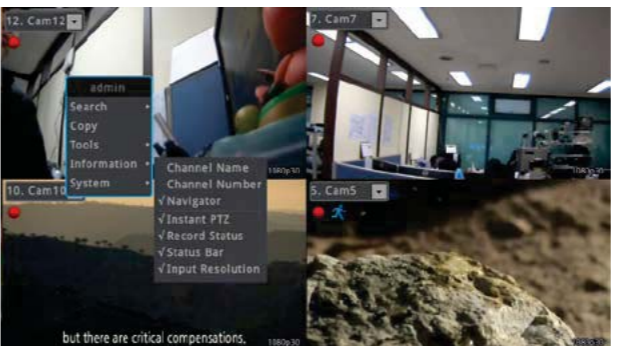HD DVR series provide Calendar/Timeline search feature which had been only supported by PC software. Through this integrated search method, customers can intuitionally find the recorded video data they want.
Besides, all HD DVR models support up to 64 times fast playback and step playback for forward/reverse direction to help easy search.

Stop   Step Reverse   Fast Reverse   Play   Fast Forward   Step Forward   Pause

28 frame
29 frame
30 frame
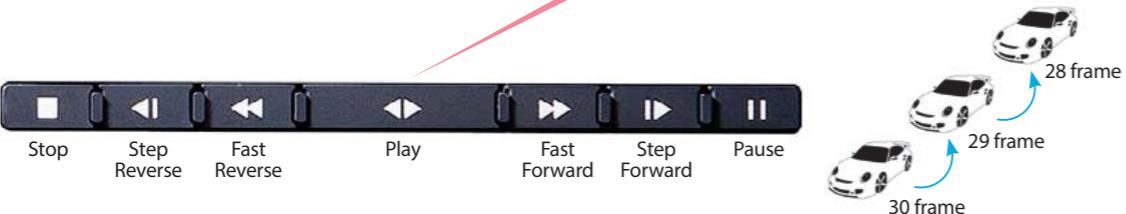
Intuitive and simple User Interface

HD DVR series have intuitive and simple user interfaces. Because DVR adopted PC's user interface components like mouse right click and scroll-wheel, everyone easily operates DVR. Moreover, CMS setting page's GUI(Graphic User Interface) have exactly same interface with DVR's, so customers who are not familiar with DVR can easily perform the whole DVR settings.

Drop-down menu by mouse right button click

Setting all channels at one page

User friendly setting menu

Improvement on reliability of recording data by RAID technology

RAID(Redundant Array Independent Disk) technology raise the reliability of recorded data by duplicated data storing or/and by processing of pre-assigned parity bits. HD400/800/1600F-PDR, HD800/1600F-R and HD1600M-PDR allows a maximum of 5HDDs inside and they support RAID function by using these HDDs. RAID level 1,5,10 are supported and they can restore the HDD's data even if the data on a hard disk was damaged.

- Supports RAID level 1,5,10 according to the quantity of installed HDDs
- Hardware RAID system increased reliability than others' software RAID
- Even if one HDD is damaged, the DVR can keep recording
- DVR provides Auto-Rebuilding function when the damaged HDD is replaced to a new one.
  DVR keeps recording during auto-rebuilding process.

RAID 1

HDD1
HDD2
DATA

RAID 5

HDD1
HDD2
HDD3
DATA

HDD1
HDD2
HDD3
HDD4
HDD5
DATA

RAID 10

HDD1   HDD2
HDD3   HDD4
DATA

Note. When 16ch Full-Frame DVR is using RAID5, the recording performance is reduced from 480fps to 320fps.
But, 4ch and 8ch DVR models do not show such performance reduction.

Multi-Streaming Technology

All of WEBGATE's products support multi-streaming, which satisfy various network requests such as high-quality monitoring, low bandwidth network and mobile monitoring.
HD DVR series always provide 3 video streams of H.264 high quality HD stream, H.264 SD class (640x360, nHD) stream and JPEG SD class stream.
The users can obtain high-quality HD video images, monitor several channels at the same time, or check the video images through mobile phone, FTP, E-mail and so on.
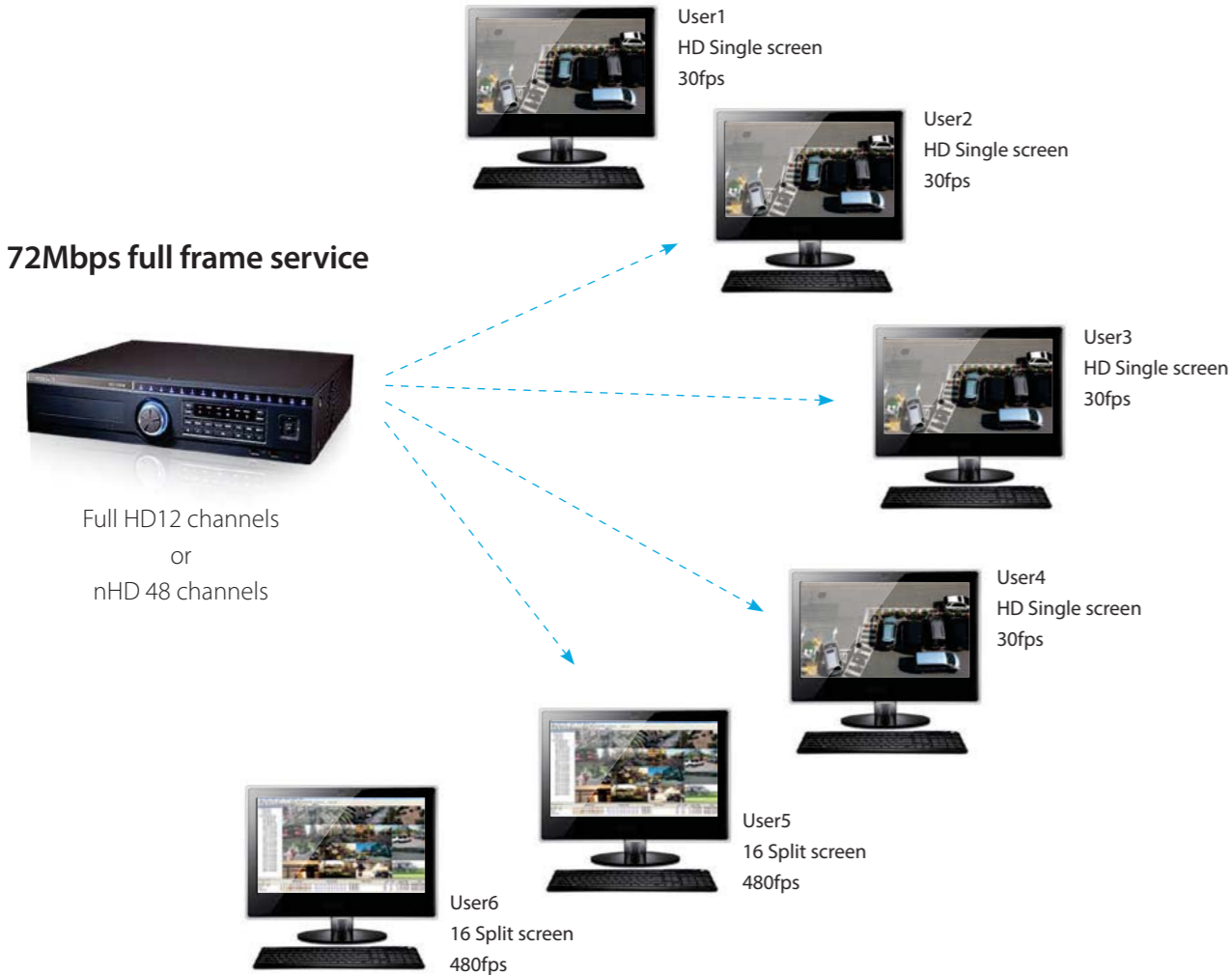All these actions are automatically performed during the communication between DVR and CMS. So, users do not need to worry about what type of stream they use, and there is no need to turn off any other functions to use multiple streams.

H.264
HD

H.264
nHD

JPEG 1fps
nHD

Mobile
stream

HD-CCTV DVR **Features**

Premium to your security **WEBGATE**

Upgraded Network Performance

The Ultimate performance PoC DVR series support 480fps network monitoring as well as 480fps recording and 480fps play-back. Newly adopted high-performance network module can provide Full-HD video monitoring up to 12 channels, and nHD video monitoring up to 48 channels. It means that DVR can provide Full-Frame monitoring service up to 72Mbps.

72Mbps full frame service

Full HD12 channels
or
nHD 48 channels

User1
HD Single screen
30fps

User2
HD Single screen
30fps

User3
HD Single screen
30fps

User4
HD Single screen
30fps

User5
16 Split screen
480fps

User6
16 Split screen
480fps

Rapid network response using SLL(Super Low Latency) technology

The HD DVR's video codec starts its compression even before images fully fill up the memory and finishes its compression by the time images have filled up the memory. Because this SLL technology is also optimized to the network transmission, video monitoring within local network only shows approximately 270ms delay.
Such a fast network response is very useful when real time monitoring over the network is necessary.

Network

0ms
Good
WEBGATE 270ms
Competitor's 1100ms
No Good

Network Monitoring Latency

28
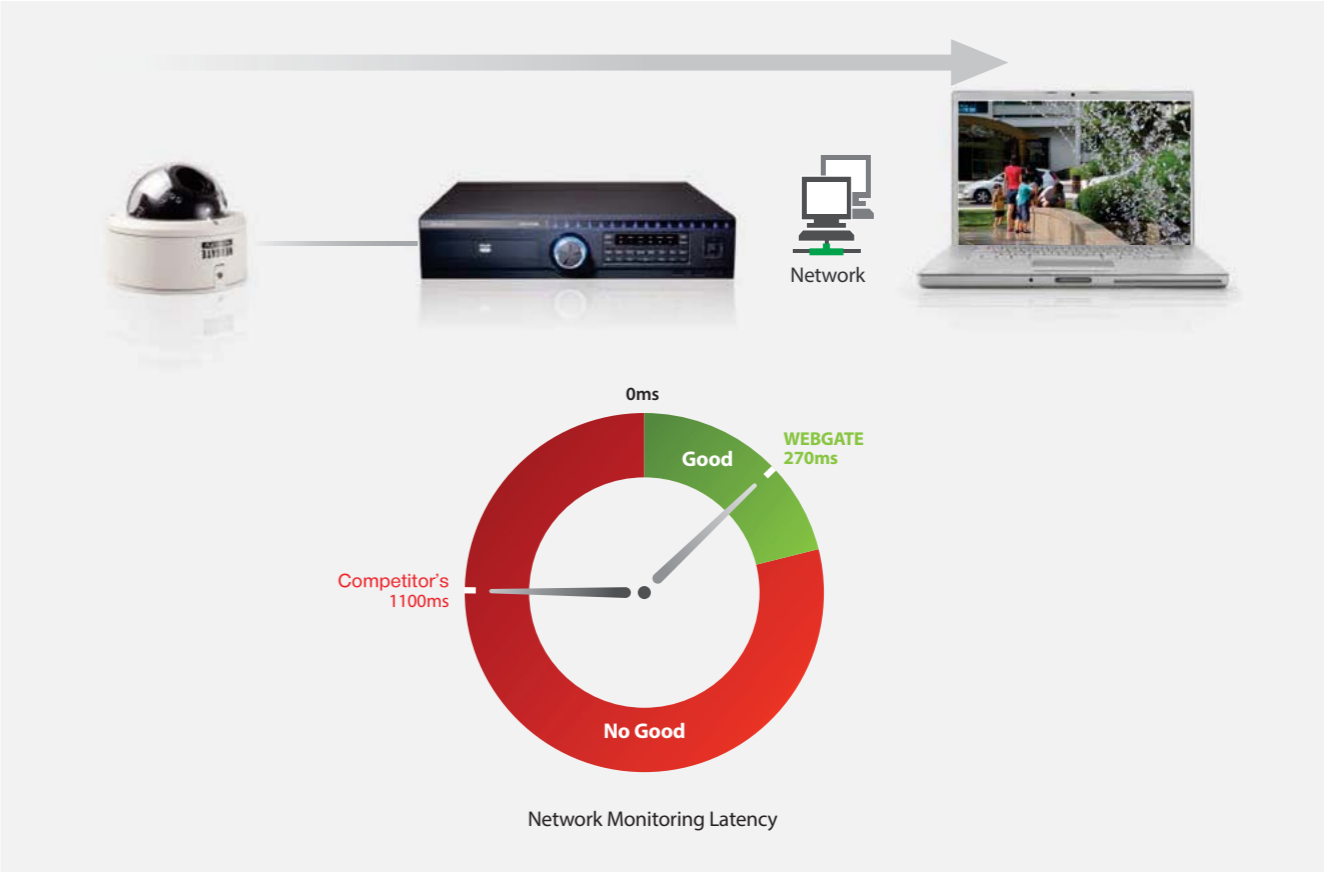
True Full-HD Display

HD DVR series provide clear and natural video image at single/ 4-split/ 9-split/ 16-split display screen. Because DVR was designed to be optimized to Full-HD 1080p video, it shows industry's best resolution of 1200TV lines.
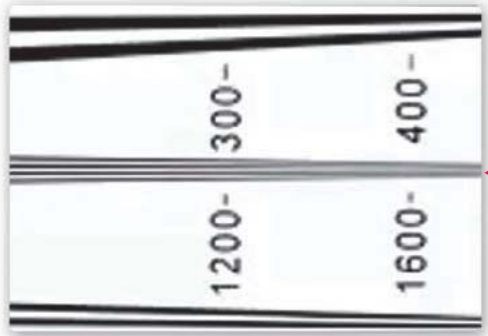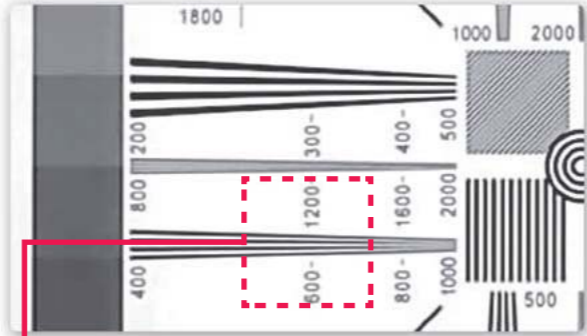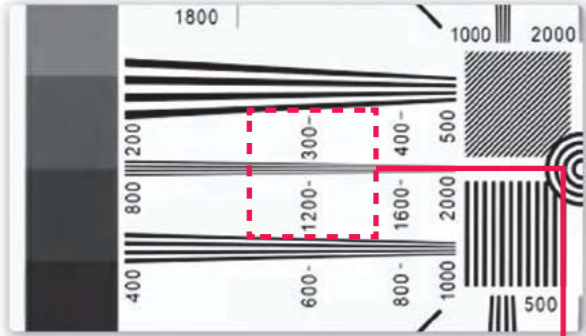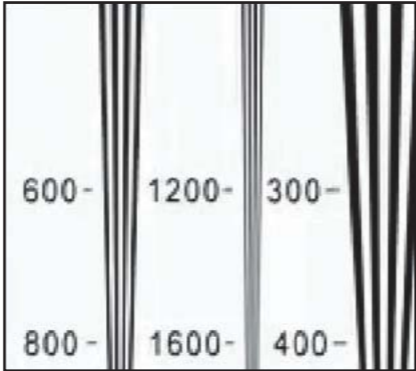
Digital Zoom of WEBGATE's product
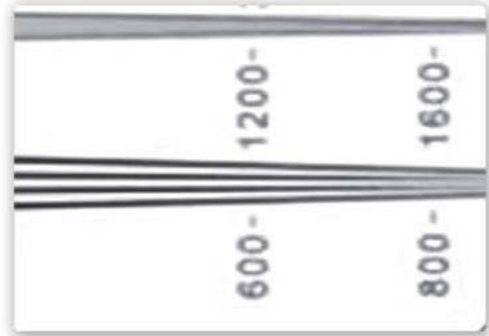
Digital Zoom of Competitor's Digital Zoom

High Performance, High Reliability Video File System (VFS)

WEBGATE's VFS is specialized DVR file system that minimizes the hard disk drive header's movement, and it allows data to be saved consecutively by sectors By using VFS, the DVR can maximize HDD's performance and improve reliability as well as life-cycle of HDD.

IPFR(Intelligent Power Failure Recovery) Technology

The SMPS is specially designed to protect circuit control so data on the HDD will not be destroyed during a sudden power failure. In some cases where data is lost, the IPFR minimizes its loss within the last single frame instead of the entire block.

Diverse bad block management

If any trouble occurs inside HDD, the HDD will mark the relevant block to prevent further access. If there are too many defects to record, DVR will hand over recording to the next HDD automatically. Bad blocks found by both DVR and S.M.A.R.T function are shown all together, so the users can make data backups before the HDD completely fails. If any trouble occurs, the DVR will make notification by e-mail, relay, popup windows, and other methods.

HD-CCTV DVR **Features**

Mass storage

Aside from the default communication network port, some HD DVR models provide additional Gigabit Ethernet port for storage interface. WEBGATE's storage NS04R can expand HD DVR's HDD capacity up to 128TB using this storage port. The NS04R has two network ports that can be cascaded up to 8 units without additional hub devices and it can improve the reliability of recorded data by supporting RAID function including Mirroring.

Additionally, external eSATA storage which have RAID technology can be connected to HD DVR's eSATA port, and this can expand the DVR storage capacity up to 32TB.

- NS04R can expand DVR's recording capacity up to 128TB by connecting with HD1600F-PDR, HD1600M-PDR, HD1600F-R, HD1600F

1TB External Hard disk back-up

HD DVR series support data backup up to 1TB using NTFS file system. 32GB USB flash memory using FAT32, 1TB external USB hard drive or external eSATA hard drive can be used for data backup. Also, customers can make backup data as AVI video format as well as WEBGATE dedicated video file format.

At-the-PC Playback

HD DVR series are using the dedicated Video File System(VFS) which is optimized to DVR. But this VFS is based on Linux based file system, so it does not have compatibility with FAT, NTFS file systems which are supported by Microsoft Windows. It means that the HDD which was used in DVR can not be recognized by Microsoft Windows based PC.

In case of WEBGATE's HD DVR series, if the HDD which was used in DVR is connected to a PC through USB or eSATA, users can do all the necessary works such as Playback, Search, Backup even though Microsoft Windows originally does not support users to read/write from the HDD. So, when the DVR is broken, the user can play recorded data and create backups using CMS. Since all these processes only require reading process of the HDD, the HDD will not have any affects when re-installed to the DVR. When full backup is necessary, user can connect same or bigger HDD and use CMS software to easily make a duplicate.

HD-CCTV DVR **Features**

Premium to your security **WEBGATE**

Easy network installation by Plug & Play

To remotely access to a DVR through internet which has dynamic IP address, you do not need to configure complicated router setting. By merely activating UPnP protocol and WRS service at DVR menu, you can easily access to the DVR.

DVR

- DHCP activated
- UPnP activated
- Enter Gruoup ID

Connecting successful

CMS

- Choose WRS server
- Enter Group ID
- Choose DVR
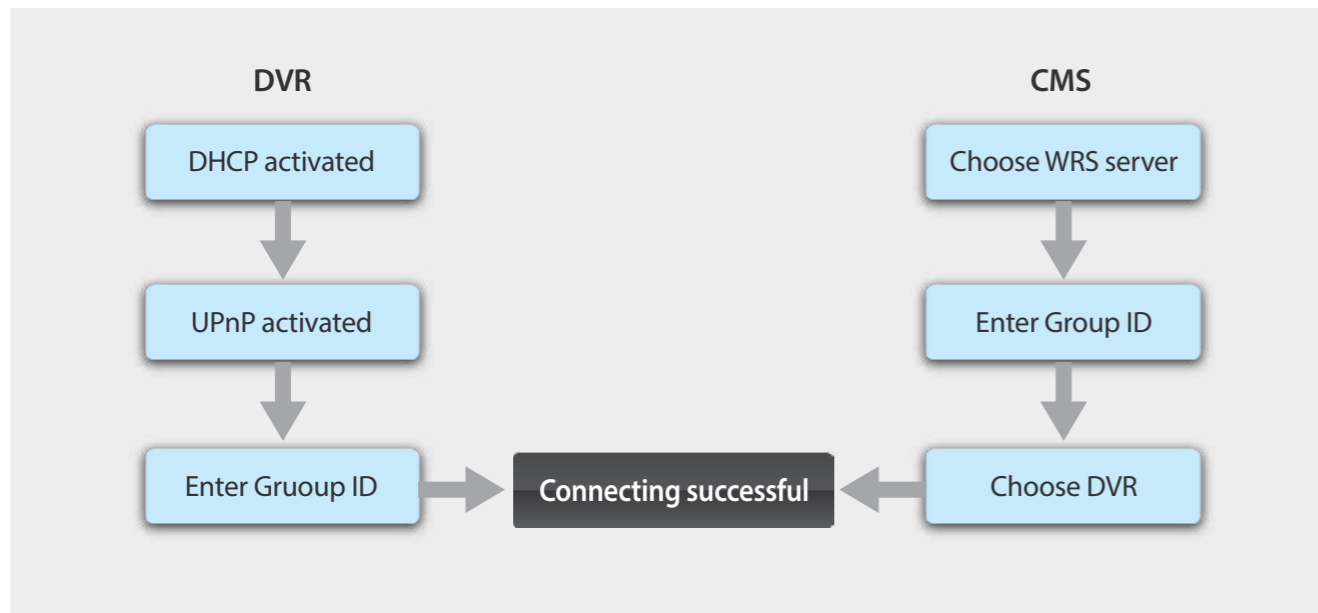
Auto Port Forward using UPnP

If a DVR shares the port number to the router by UPnP protocol, the router can deliver the connection request from an external source to the DVR automatically. Users don't need to configure the router.

WRS(WEBGATE Registration Service)

WRS is a network service that manages the DVR which has both a public and dynamic IP. If the operator inputs a group ID at DVR menu, the group ID is registered to WEBGATE's WRS server. Since the CMS shows the DVR list under the same group ID by communication between CMS and WRS, user can easily connect to the desired DVR. There is no need to sign up for a membership, remember MAC address or serial number.

WNS (WEBGATE Naming Service)

WNS is a DDNS service which was developed and managed by WEBGATE. If used WNS servers, users can easily connect to the DVR by assigned domain name.
Because WNS is served from a server located in IDC(Internet Data Center) where can always provide stable connection state, prompt action is possible even if any trouble occurs. The user can directly configure the WNS service through WNS webpage(www.mycam.to) or DVR menu. Of course, user can use free DDNS services such as www.dyndns.org or www.no-ip.org.
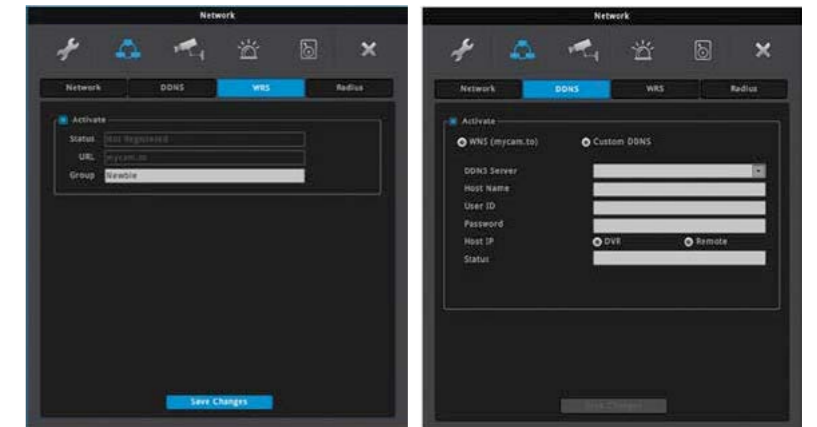
Frame by Frame step reverse

Due to high performance codec the latest video processing technology, the DVR can provide forward and reverse step-by-step playback by frame. When the user wants to find any single frame, it will be very effective. It is very useful in places like racetrack and casino where all frames are valuable.

HD-CCTV DVR **Features**

Advanced Lightning Arrestor

WEBGATE's advanced lightning arresters can cope with 6KV test condition. And it meets more than the requirement of the international surge standard IEC61000-4-5's highest level, class5(2KV). All of WEBGATE's HD-SDI DVRs have built in advanced arrestors to help minimize damage from potential lightning strikes. The HD-SDI product line of high-frequency signals, RS-485 communication lines have the advanced surge protection circuit. This also includes protection for the sensor / relay as well.

Time Synchronized DVR Network

The DVR can synchronize time information directly from NTP server. Moreover, a DVR can work as a time server and distribute the time information to other DVRs on the local network at the same time. This way, there is not time differences between each DVR.
Also, when DVR is not connected to a network, DVR's temperature compensated real-time clock guarantees less than 0.1 second error in one day.

NTP server

Time server

Manage DVR time equally

NTP client   NTP client
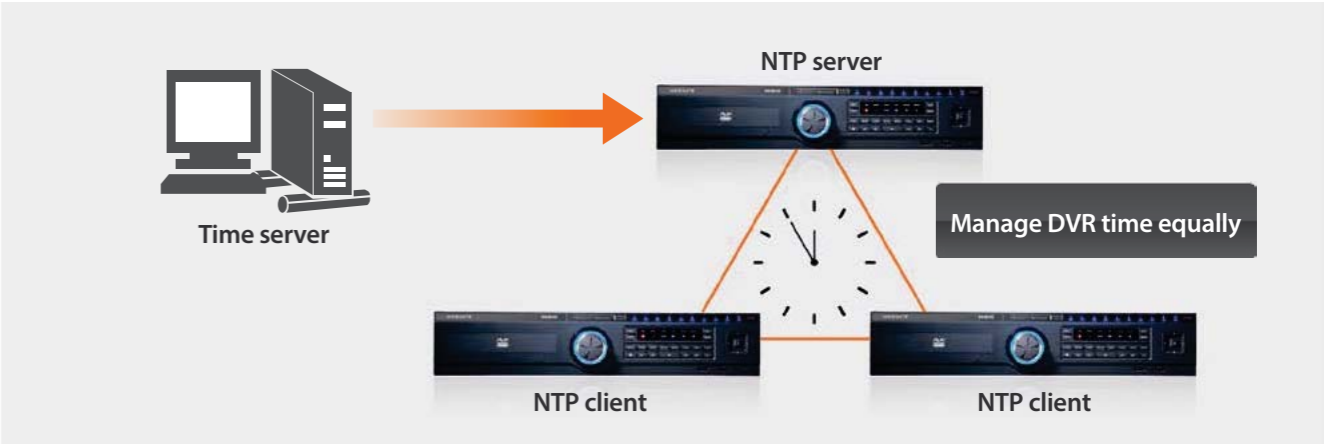
Interface with POS/ATM

WEBGATE DVR can interface with VSI product lines that contain 300 types of POS/ATM protocols within. Through he family of VSI products, the DVR can record text data, provide search and playback. By connecting multiple VSI products, the DVR can receive text data from several POS devices and DVR can connect the text data to the desired video channel. DVR records video and text data separately, and can overlay text data on video when it is necessary. CMS also supports text search.

camera   ATM

POS   VSI Pro Hydra

Mart

POS   VSI Pro

Ehternet
Search text contents

RS-485   RS-232
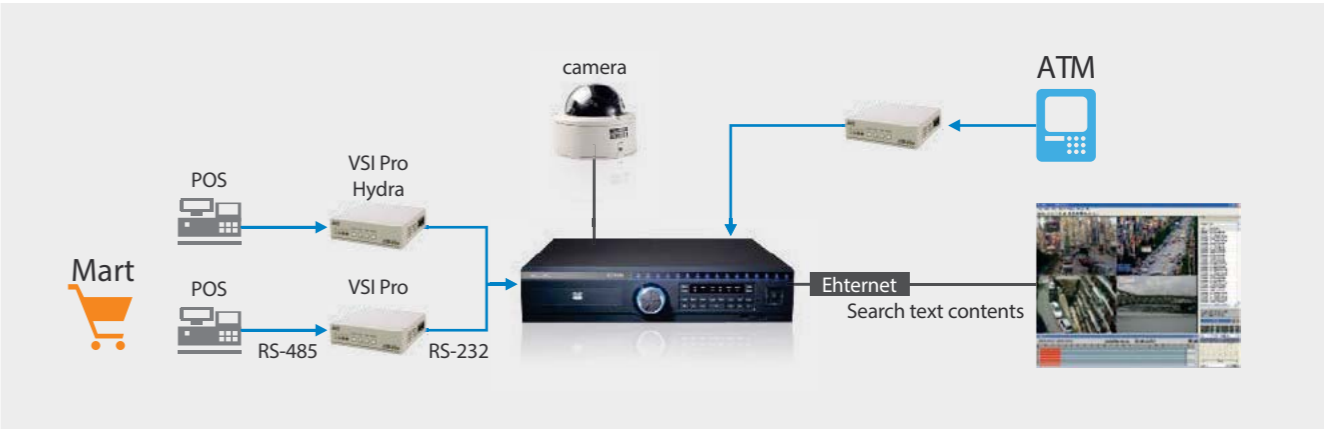
HD-CCTV DVR **Features**

Multi platform support by Java viewer

WEBGATE's DVR are embedded with Java Viewer which support connection from different operating systems such as Mac and Linux. User can access PTZ control, event/alarm through such as MS Windows' internet explorer, Chrome and Firefox.

Chrome   Safari

FireFox

Centralized Password Management

WEBGATE's DVRs contain Radius protocol with which a server can change every DVRs' password at once. This function is instrumental and handy for the places where the administrator needs to change the password periodically.

RADUIS Server

(2) Validation Request
(3) Validation Result

(4) Login OK or NG
(1) ID & Password

Control Center

RADUIS Server

Network

Bank #1
Bank #2
Bank #3
Bank #4
Bank #5

Control Center
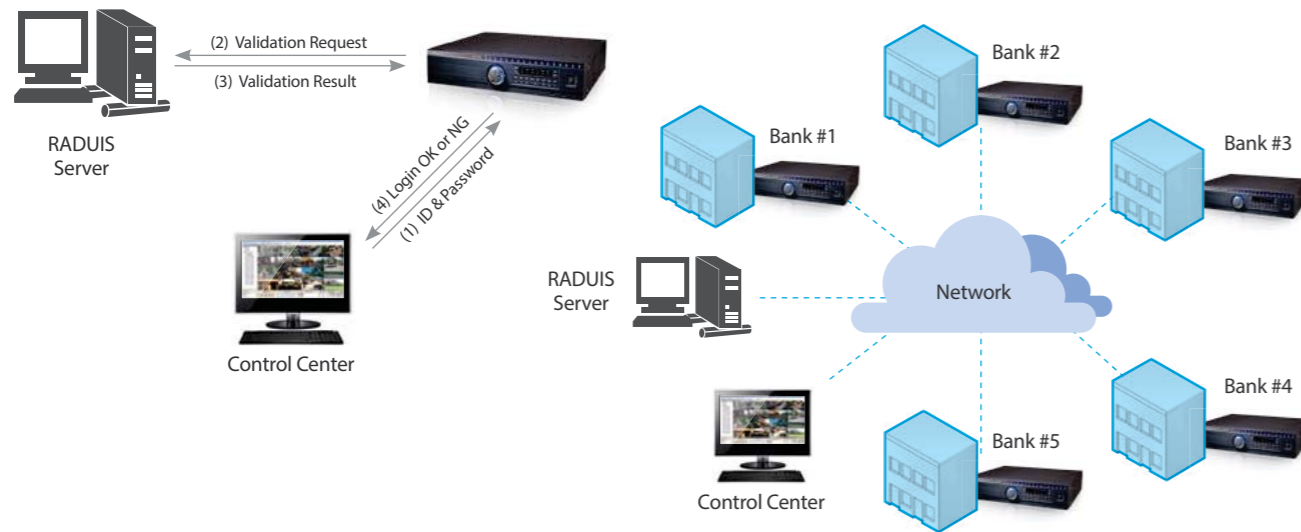
Flexible and powerful WESP SDK

Due to the flexibility and interoperability of the WESP (WEBGATE Embedded Standard Protocol) SDK, it supports all functions of equipment so that a user can easily develop their own applications.

This SDK supports a broad range of equipment from low to high levels such as video data receiving and playback with caption display. The user can develop programs based on their coding capabilities.

The WESP SDK was developed based on Microsoft COM technology, and it supports various programming languages (VB, VC++, VB Script, Java Script, .NET). Web developers who are familiar Java Script can create their own customized applications to fit their needs.

Since all of WEBGATE's products conform to WESP protocol, if a user create a program, that same application can be used with other WEBGATE products.

Powerful User Application | Simple User Application | Web Application

High Level Functions

WESP SDK

Low Level Functions

WESP Protocol

| HD DVR | SD DVR | Video Server | IP Camera | NVR | WinRDS | WRS/WNS |

Monitor
Playback
File Converter
Serial Port
Config   **WESP SDK**
Event   PTZ
Discovery
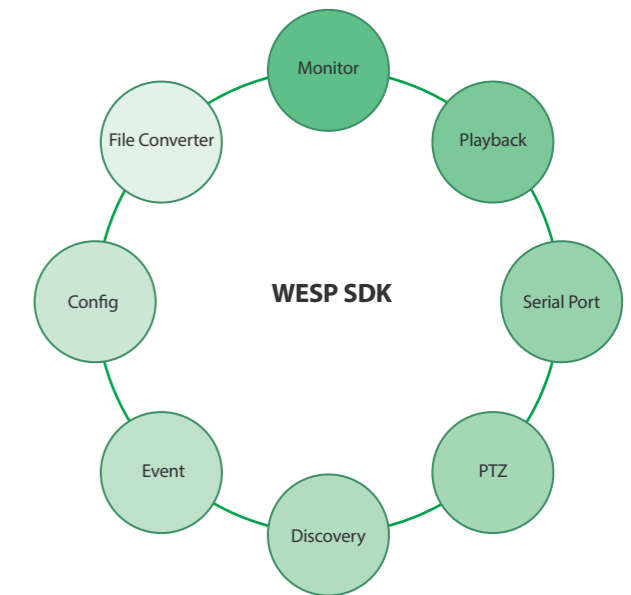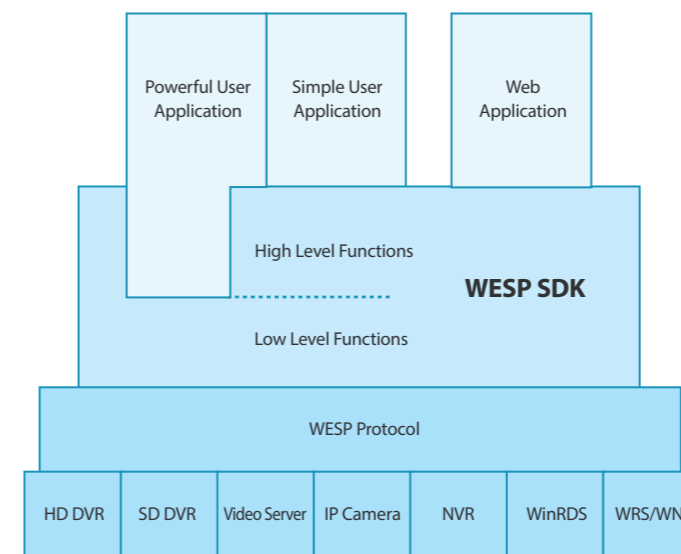
HD-CCTV DVR **Features**

Powerful CMS : Control Center Standard/ Pro/ Enterprise

Control Center Standard is provided as a bundle software for the DVR. It can provide users with a maximum of 1024 DVRs, dual-monitors, View Set, user-specific authority settings, e-Map, real-time status and other necessary functions found in high-end models. It also provides real time event status, and all the other necessary functions. Diverse search methods are also included such as Time, Calendar, Event, Thumbnail, and text based search to help the operator playback recorded video data with ease.
The Control Center Pro includes all functions of the Standard version, but also provides functions which are necessary for a large scale central control system. It supports a maximum 6 monitors, provides Rule-based Auto Action which the operator can define a series of DVR actions. The DVR can also record the operator's CMS control history.
The Enterprise version provides Virtual Matrix system, One server PC can control a maximum of 50 client PC's CMS. This allows large scale of systems to be constructed without using expensive HD-SDI matrix device.

full screen	e-map view	playback
main display	smart search	schedule backup

Mobile Viewer : WebEye

WebEye is a mobile application that supports iOS and Android. Users can register DVRs, monitor video and control PTZ. Also, WebEye supports full-frame monitoring and digital zoom to observe the details of HD video.
WebEye provides system log to check DVR's operating condition such as power failure, hard disk trouble, also provides event log to check alarm history.

Pinch to Zoom

[HD video check using D-Zoom in iPhone viewer]
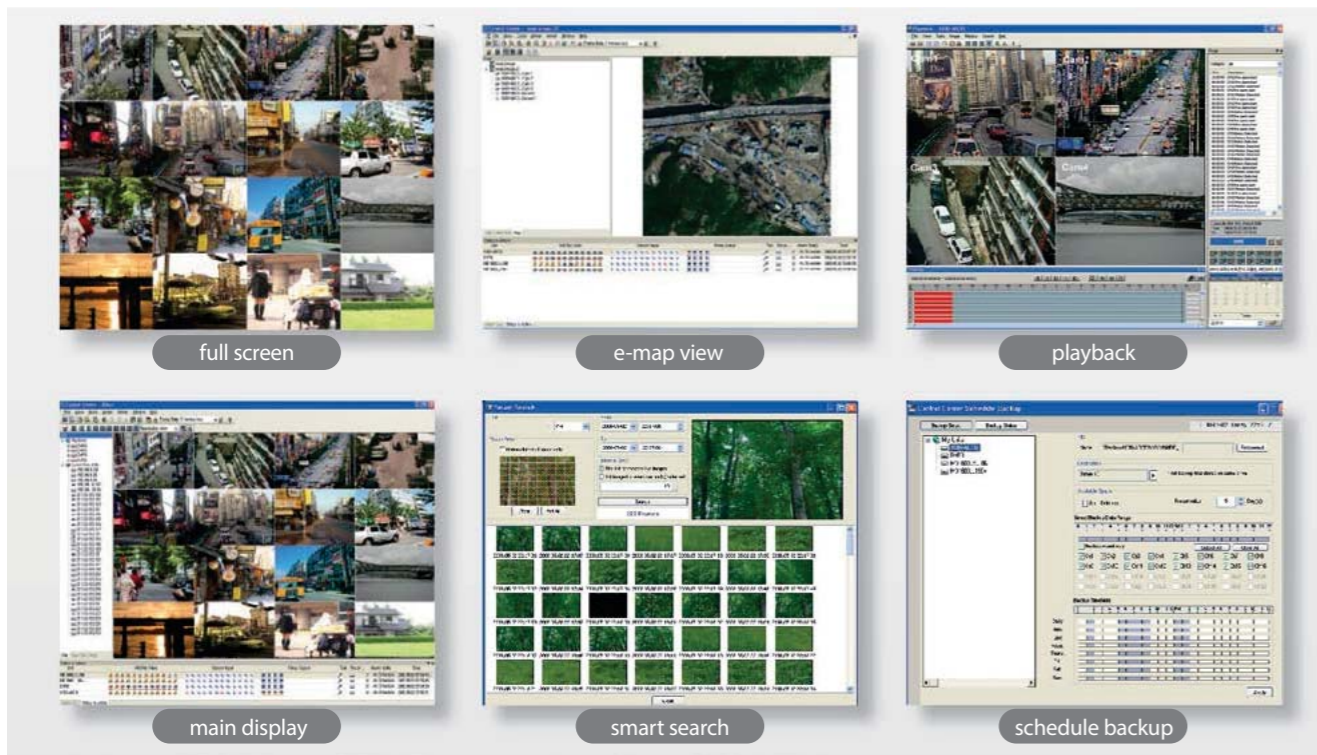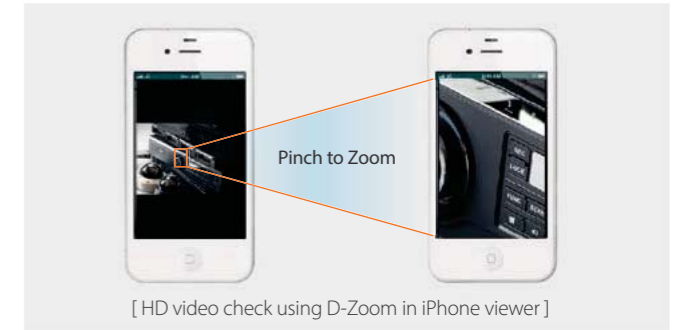
Product Family : HD DVR

Full-frame recording/playback, PoC/CoC, DoubleReach, RAID supporing Ultimate performance PoC DVR series and High performance DVR series are available.

Ultimate performance PoC DVR

Full-frame Recording & Playback for all channels
Built-in PoC/CoC, DoubleReach™, RAID function

HD1600F-PDR   HD1600M-PDR
HD800F-PDR   HD400F-PDR

HDC801F-PD

HDC400F-PD

High performance DVR

High performance 4 / 8 / 16ch DVR

HD1600F-R   HD1600F
HD800F-R

HDC1601M   HDC801F
HDC801H

HDC400F

HD-CCTV **DVR**

HD1600F-PDR   Full-HD & Full-Frame DVR supporting PoC/CoC, DoubleReach™, RAID

Key Features

- 16ch HD-SDI Standalone DVR
- The World's First HDcctv Certified PoC/CoC 16ch HD-SDI DVR
- Self-power supply to all 16 cameras by PoC (Power over Cable) function
- Control all 16 cameras by CoC (Control over Coax) function
- Doubles the video transmission distance by DoubleReach™ technology
- Max. 480/400fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/9/10/13/16 Split-screen)
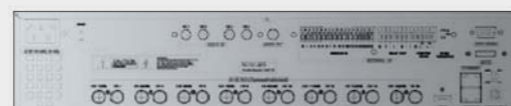- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Hardwired RAID system supporting RAID level 1/5/10
- Supports Max. 128TB(NS0104R connection via Gigabit ethernet) and
  Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
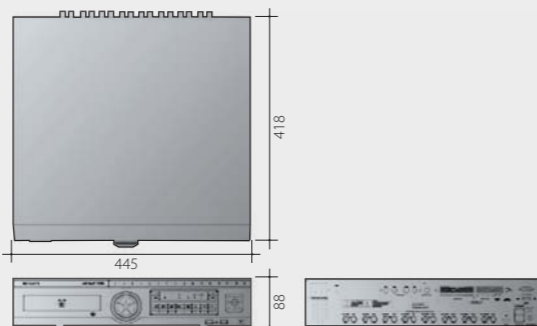- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
	Odd channels support DoubleReach (Total 8 channels)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	16ch, 75Ω BNC connector
PoC	16ch, Power over Coax, Max. 16 W/ch, Total 180W
CoC	16ch, Control over Coax, Max. 57,600bps

VIDEO OUTPUT	
Video Output	HDMI
	1, 4, 9, 10, 13, 16 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	480/400 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK	
Mode	Instant playback / search
Speed	Max. 480/400 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP	
Storage devices	5 internal SATA HDDs, 1 external eSATA Interface,
	1 Gigabit network for storage(NS04R)
RAID Level	1/5/10 Supported
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA, Max. 128TB with cascaded NS04R
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 Dry-contacts
Relay output	4 Relays

CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5℃~45℃ (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
PoC Power	DC 24V/7.5A (Option)
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD1600M-PDR   Full-HD DVR supporting PoC/CoC, DoubleReach™, RAID

Key Features

- 16ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Self-power supply to all 16 cameras by PoC (Power over Cable) function
- Control all 16 cameras by CoC (Control over Coax) function
- Doubles the video transmission distance by DoubleReach™ technology
- Max. 120/100fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/9/10/13/16 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Hardwired RAID system supporting RAID level 1/5/10
- Supports Max. 128TB(NS04R connection via Gigabit ethernet) and
  Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
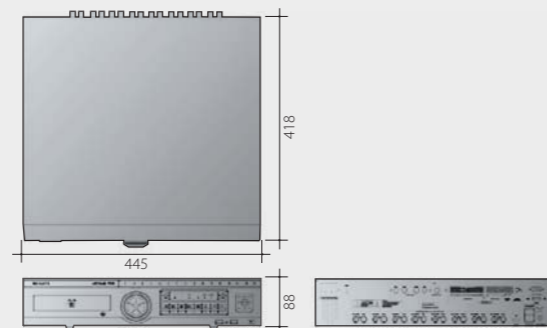- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

418

445

88

Specifications

VIDEO INPUT

Video input standard	SMPTE 292M (HD-SDI)
	Odd channels support DoubleReach (Total 8 channels)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	16ch, 75Ω BNC connector
PoC	16ch, Power over Coax, Max. 16 W/ch, Total 180W
CoC	16ch, Control over Coax, Max. 57,600bps

VIDEO OUTPUT

Video Output	HDMI
	1, 4, 9, 10, 13, 16 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING

Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	120/100 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Speed	Max. 120/100 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO

Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK

Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	5 internal SATA HDDs, 1 external eSATA Interface,
	1 Gigabit network for storage(NS04R)
RAID Level	1/5/10 Supported
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA, Max. 128TB with cascaded NS04R
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	16 Dry-contacts
Relay output	4 Relays

CONTROLLER

Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
PoC Power	DC 24V/7.5A (Option)
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

HD800F-PDR   Full-HD & Full-Frame DVR supporting PoC/CoC, DoubleReach™, RAID

Key Features

- 8ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Self-power supply to all 8 cameras by PoC (Power over Cable) function
- Control all 8 cameras by CoC (Control over Coax) function
- Doubles the video transmission distance by DoubleReach™ technology
- Max. 240/200fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/8 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Hardwired RAID system supporting RAID level 1/5/10
- Supports Max. 128TB(NS0104R connection via Gigabit ethernet) and
  Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
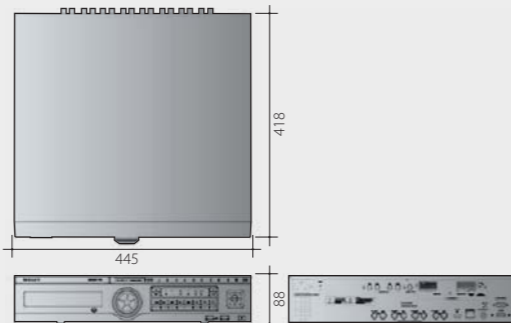- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT

Video input standard	SMPTE 292M (HD-SDI)
	Odd channels support DoubleReach (Total 4 channels)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	8ch, 75Ω BNC connector
PoC	8ch, Power over Coax, Max. 16 W/ch, Total 120W
CoC	8ch, Control over Coax, Max. 57,600bps

VIDEO OUTPUT

Video Output	HDMI
	1, 4, 8 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING

Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	240/200 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Speed	Max. 240/200 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO

Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK

Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	5 internal SATA HDDs, 1 external eSATA Interface
RAID Level	1/5/10 Supported
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	8 Dry-contacts
Relay output	4 Relays

CONTROLLER

Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
PoC Power	DC 24V/5A (Option)
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

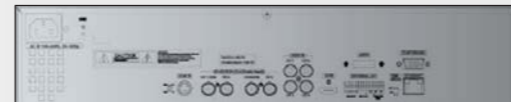# HD400F-PDR Full-HD & Full-Frame DVR supporting PoC/CoC, DoubleReach™, RAID

Key Features

- 4ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Self-power supply to all 4 cameras by PoC (Power over Cable) function
- Control all 4 cameras by CoC (Control over Coax) function
- Doubles the video transmission distance by DoubleReach™ technology
- Max. 120/100fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Hardwired RAID system supporting RAID level 1/5/10
- Supports Max. 128TB(NS0104R connection via Gigabit ethernet) and
  Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
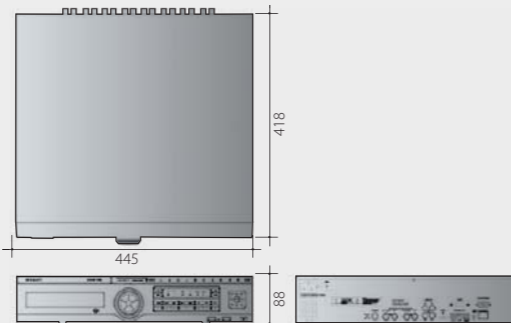- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
	Odd channels support DoubleReach (Total 2 channels)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	4ch, 75Ω BNC connector
PoC	4ch, Power over Coax, Max. 16 W/ch, Total 64W
CoC	4ch, Control over Coax, Max. 57,600bps

VIDEO OUTPUT	
Video Output	HDMI
	1, 4 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	120/100 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK	
Mode	Instant playback / search
Speed	Max. 120/100 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP	
Storage devices	5 internal SATA HDDs, 1 external eSATA Interface
RAID Level	1/5/10 Supported
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	4 Dry-contacts
Relay output	4 Relays

CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
PoC Power	DC 24V/5A (Option)
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

Premium to your security **WEBGATE**

HDC801F-PD Full-HD & Full-Frame DVR supporting PoC/CoC, DoubleReach™

Key Features

- 8ch HD-SDI Standalone DVR
- The World's First HDcctv Certified PoC/CoC 8ch HD-SDI DVR
- Self-power supply to all 8 cameras by PoC (Power over Cable) function
- Control all 8 cameras by CoC (Control over Coax) function
- Doubles the video transmission distance by DoubleReach™ technology
- Max. 240/200fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/8 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 2 Internal SATA Type HDDs
- Supports Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
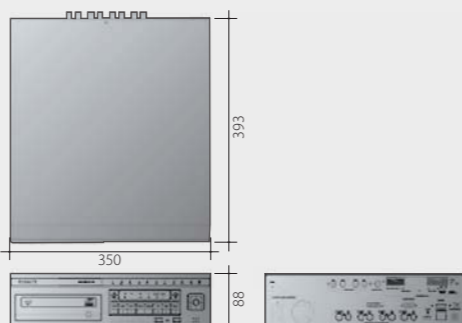- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT
Video input standard	SMPTE 292M (HD-SDI)
	Odd channels support DoubleReach (Total 4 channels)
Resolution / framerate	SMPTE 274M(1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	8ch, 75Ω BNC connector
PoC	8ch, Power over Coax, Max. 16 W/ch, Total 120W
CoC	8ch, Control over Coax, Max. 57,600bps

VIDEO OUTPUT
Video Output	HDMI
	1, 4, 8 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	240/200 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK
Mode	Instant playback / search
Speed	Max. 240/200 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM
Alarm source	HDD fail, HDD almost full, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, Panasonic and others

NETWORK
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP
Storage devices	2 internal SATA HDDs, 1 external eSATA Interface
File system	Proprietary file system, Data-loss protection against power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O
Serial port	1 RS-232C, 2 RS-485
Sensor input	8 Dry-contacts
Relay output	2 Relays

CONTROLLER
Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL
Dimension	350(W) x 393(D) x 88(H) mm
Weight	8 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
PoC Power	DC 24V/5A (Option)
Power Consumption	Max. 75W Typical 50W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

49   50

HDC400F-PD   Full-HD & Full-Frame DVR supporting PoC/CoC, DoubleReach™

Key Features

- 4ch HD-SDI Standalone DVR
- The World's First HDcctv Certified PoC/CoC 4ch HD-SDI DVR
- Self-power supply to all 4 cameras by PoC (Power over Cable) function
- Control all 4 cameras by CoC (Control over Coax) function
- Doubles the video transmission distance by DoubleReach™ technology
- Max. 120/100fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 1 Internal SATA Type HDDs
- Supports Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
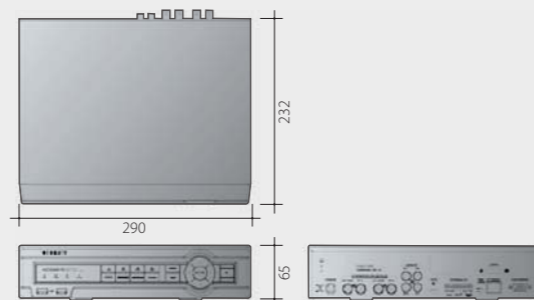- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

232

290

65

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
	Odd channels support DoubleReach (Total 2 channels)
Resolution / framerate	SMPTE 274M(1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	4ch, 75Ω BNC connector
PoC	4ch, Power over Coax, Max. 16 W/ch, Total 64W
CoC	4ch, Control over Coax, Max. 57,600bps
VIDEO OUTPUT	
Video Output	HDMI
	1, 4 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	120/100 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	Max. 120/100 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay
AUDIO	
Input/output	Input 4ch RCA / output HDMI
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	1 internal SATA HDDs, 1 external eSATA Interface
File system	Proprietary file system, Data-loss protection against power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	4 Dry-contacts
Relay output	2 Relays
CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	290(W) x 232(D) x 65(H) mm
Weight	2.5 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	DC24V, 5A
Power Consumption	Max. 30W Typical 20W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

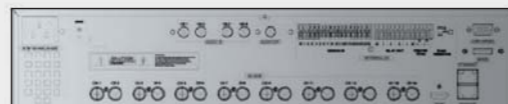## HD1600F-R Full-HD & Full-Frame DVR supporting RAID

Key Features

- 16ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 480/400fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/9/10/13/16 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Hardwired RAID system supporting RAID level 1/5/10
- Supports Max. 128TB(NS0104R connection via Gigabit ethernet) and
  Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
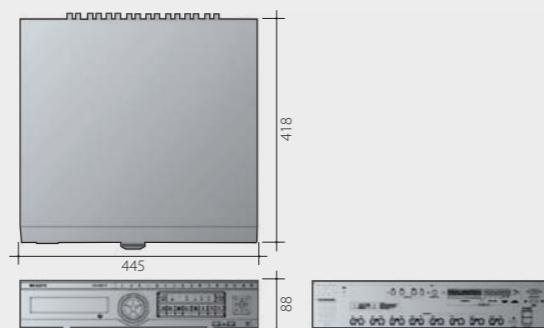- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	16ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI
	1, 4, 9, 10, 13, 16 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	480/400 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	Max. 480/400 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay
AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	5 internal SATA HDDs, 1 external eSATA Interface,
	1 Gigabit network for storage(NS04R)
RAID Level	1/5/10 Supported
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA, Max. 128TB with cascaded NS04R
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 Dry-contacts
Relay output	4 Relays
CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

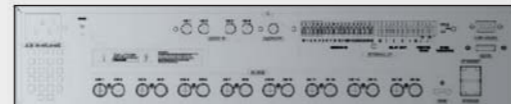## HD1600F   Full-HD & Full-Frame Digital Video Recorder

Key Features

- 16ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 480/400fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/9/10/13/16 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Supports Max. 128TB(NS04R connection via Gigabit ethernet) and
  Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
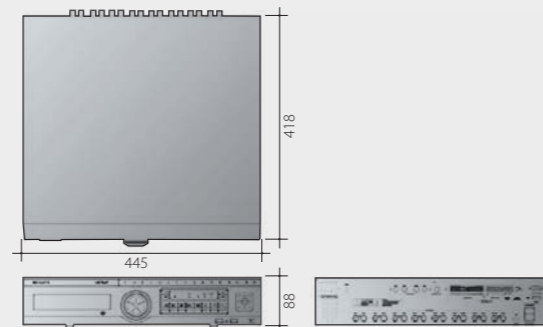- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

418

445

88

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT	
Video Output	HDMI
	1, 4, 9, 10, 13, 16 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	480/400 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK	
Mode	Instant playback / search
Speed	Max. 480/400 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP	
Storage devices	5 internal SATA HDDs, 1 external eSATA Interface,
	1 Gigabit network for storage(NS04R)
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA, Max. 128TB with cascaded NS04R
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 Dry-contacts
Relay output	4 Relays

CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5℃~45℃ (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

HDC1601M Full-HD Digital Video Recorder

Key Features

- 16ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 120/100fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/9/10/13/16 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 2 Internal SATA Type HDDs
- Supports Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
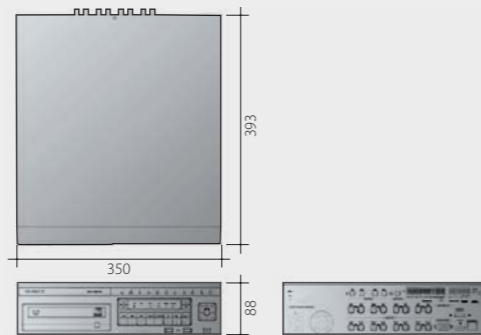- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	16ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI
	1, 4, 9, 10, 13, 16 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	120/100 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	Max. 120/100 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay
AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

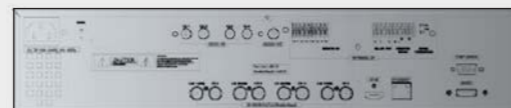| NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	2 internal SATA HDDs, 1 external eSATA Interface
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 Dry-contacts
Relay output	2 Relays
CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 393(D) x 88(H) mm
Weight	8 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
Power Consumption	Max. 75W Typical 50W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD800F-R   Full-HD & Full-Frame DVR supporting RAID

Key Features

- 8ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 240/200fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/8 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 5 Internal SATA Type HDDs
- Hardwired RAID system supporting RAID level 1/5/10
- Supports Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
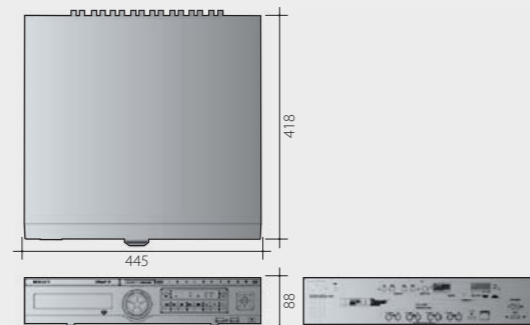- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M (1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	8ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI
	1, 4, 8 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	240/200 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	Max. 240/200 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay
AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	5 internal SATA HDDs, 1 external eSATA Interface
RAID Level	1/5/10 Supported
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	8 Dry-contacts
Relay output	4 Relays
CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60HzZ
Power Consumption	Max. 100W Typical 70W(1 HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

HDC801F   Full-HD & Full-Frame Digital Video Recorder

Key Features

- 8ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 240/200fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/8 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 2 Internal SATA Type HDDs
- Supports Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
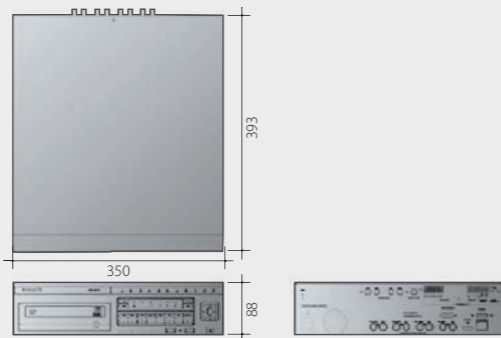- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

393

350

88

Specifications

VIDEO INPUT

Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	8ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	HDMI
	1, 4, 8 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING

Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	240/200 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Speed	Max. 240/200 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO

Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, Panasonic and others

NETWORK

Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	2 internal SATA HDDs, 1 external eSATA Interface
File system	Proprietary file system, Data-loss protection against power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	8 Dry-contacts
Relay output	2 Relays

CONTROLLER

Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	350(W) x 393(D) x 88(H) mm
Weight	8 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
Power Consumption	Max. 75W Typical 50W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

HDC801H Full-HD Digital Video Recorder

Key Features

- 8ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 100/120fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4/8 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 2 Internal SATA Type HDDs
- Supports Max. 32TB(e-SATA) external storage interface
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
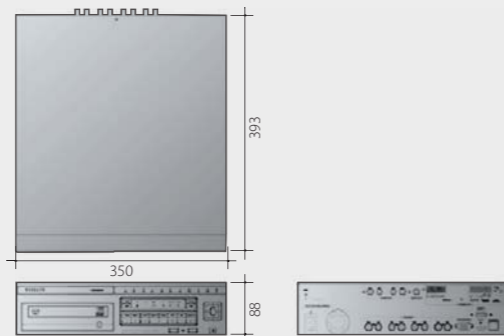- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(1080p, 1920x1080) : 25, 30, 29.97 fps
	Input format auto detection
Connectors	8ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI
	1, 4, 8 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	120/100 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	Max. 120/100 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay
AUDIO	
Input/output	Input 4ch RCA / output HDMI, RCA
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, Panasonic and others

NETWORK	
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting
	1 additional H.264 stream, nHD(640 x 360)
	1 JPEG stream, nHD(640 x 360) for e-mail or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	2 internal SATA HDDs, 1 external eSATA Interface
File system	Proprietary file system, Data-loss protection against
	power-failure
Capacity	Max. 32TB with eSATA
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	8 Dry-contacts
Relay output	2 Relays
CONTROLLER	
Device	Front panel, IR remote, Joystick Keyboard, Mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 393(D) x 88(H) mm
Weight	8 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC), 50/60Hz
Power Consumption	Max. 75W Typical 50W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **DVR**

HDC400F Full-HD & Full-Frame Digital Video Recorder

Key Features

- 4ch HD-SDI Standalone DVR
- Certified by HDcctv Alliance
- Max. 120/100fps Recording & Playback at Full-HD 1080p resolution
- Adjustable recording quality and framerate per each channel
- Supports High-resolutions over 1200TV lines at Live/Playback
- Supports Dual Codec(H.264,JPEG) & Multi Stream (HD, nHD(640x360))
- Full-HD 1920x1080 resolution output via HDMI port
- Various Live and Playback display (1/4 Split-screen)
- Robust IPFR (Intelligent Power Failure Recovery) DVR File System
- Max. 2 Internal SATA Type HDDs
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search available
- At-the-PC Playback of removed DVR HDD
- Lightning arrester on HD-SDI, RS-485, DIO ports
- Provides bundle CMS program, managing Max. 1,024 DVRs in various ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Supports various mobile platform (iPhone/Android Viewer, Mobile page)
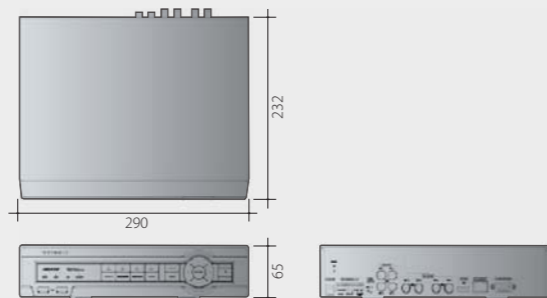- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(1080p, 1920x1080) : 25, 30, 29.97 fps Input format auto detection
Connectors	4ch, 75Ω BNC connector

VIDEO OUTPUT
Video Output	HDMI
	1, 4 split-screen
	User defined sequence / Alarm pop-up
	1920 x 1080p via HDMI port

RECORDING
Compression	H.264 / JPEG
Resolution	1920 x 1080
Rate	120/100 fps at 1080p
Quality	1080p, 10 levels up to 12Mbps
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK
Mode	Instant playback / search
Speed	Max. 120/100 fps at 1080p
Search type	Time, Calendar, Timeline, Event, Thumbnail, Smart, Text
Block playback	24hours ~ 99days

EVENT & ALARM
Event source	MD(Motion Detection), Sensor, Text, Video Loss
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm pop-up
MD area	15 x 10
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM
Alarm source	HDD fail, HDD almost full, Password fail, WRS fail
Alarm action	Warning message, Buzzer, E-mail, Relay

AUDIO
Input/output	Input 4ch RCA / output HDMI
Compression	16KHz, 16bit sampling ADPCM
Direction	Both

PTZ
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, Panasonic and others

NETWORK
Interface	1 Gigabit Ethernet (10/100/1000Mbps)
Type	Static IP, Dynamic IP, xDSL
DDNS	WNS, DynDNS, NoIP, WRS
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD, H.264 stream, Same as recording setting 1 additional H.264 stream, nHD(640 x 360) 1 JPEG stream, nHD(640 x 360) for e-mail or mobile

SECURITY
User level	1 admin, 10 users
User privilege	Menu, PTZ, Relay, Playback, Power, Copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP
Storage devices	2 internal SATA HDDs
File system	Proprietary file system, Data-loss protection against power-failure
Backup type	Multi-channel or Single channel avi file
Backup device	USB drive (2 ports)
S.M.A.R.T.	Temperature and Health checking

SERIAL & I/O
Serial port	1 RS-232C, 2 RS-485
Sensor input	4 Dry-contacts
Relay output	2 Relays

CONTROLLER
Device	Front panel, IR remote, Joystick Keyboard, Mouse

SOFTWARE
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event / PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring / PTZ / LogView with iPhone & Android
CMS	Control Center Standard, Max. 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL
Dimension	290(W) x 232(D) x 65(H) mm
Weight	2.5 Kg (No HDD)
Operating temperature	5°C~45°C (41°F ~ 113°F)
Power	DC12V, 5A
Power Consumption	Max. 30W Typical 20W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV

Cascading up to **8 units**
Max. Capacity of 64TB

WEBGATE NVS04R   •   1   2   3   4

Storage

Connection by **Gigabit Ethernet**
Supports **Mirroring**
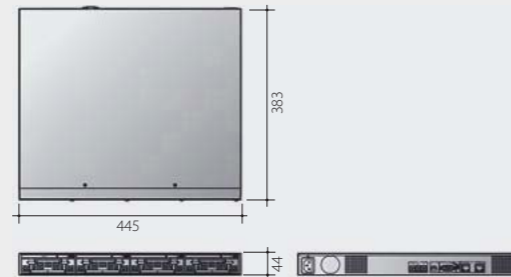
HD-CCTV **Storage**

Front

Back

NS04R   HD-CCTV External Storage Equipment

Key Features

- Dedicated storage equipment for DVR
- Supports WEBGATE's HD DVR series
- Max. 128TB storage expansion
- RAID Level 1/5/10 and support Auto-Rebuiding
- IPFR (Intelligent Power Failure Recovery) file system
- At-the-PC Playback of removed DVR HDD
- 4 Hot-Swap, SATA type HDD bays
- Built-in 1 network port for DVR connection
- Built-in 1 network port for NS04R cascade connection

Dimension (unit:mm)

383

445

44

Specifications

SYSTEM

OS	Embedded linux
Storage device	4 SATA interface with hot-swap function
Intelligent file system	Data-loss protection against power failure
Capacity / Unit	Max 32TB
Capacity Expansion	Max 128TB by cascaded NS04R
	Max 8 NS04R can be cascaded

RECORDING

Performance	96Mbps
RAID	RAID level 1/5/10 with Auto Rebuild

NETWORK

Connection 1	Gigabit ethernet for DVR connection
Connection 2	Gigabit ethernet for cascaded connection of NS04R

ENVIRONMENTAL & PHYSICAL

Dimension	445(W) x 383(D) x 44(H) mm
Weight	Approx. 5.5 Kg (with one HDD)
Operating Temperature	5℃ ~ 45℃ (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 85W Typical 60W
Approval	FCC, CE, MIC, RoHS

HD-CCTV **Storage**

Premium to your security **WEBGATE**

ES0104 e-SATA RAID Subsystem

Key Features

- 1U/4Bays, eSATA - SATA II RAID sub-system
- RAID : 0,1, 3, 5, 10, Large
- SATAII (up to 3Gbps) host bus interface
- Supports hot spare and automatic rebuild
- Local event notification
- Real time drive activity and system status indicators
- Easy RAID level maintenance
- Max. 8TB support interfaced with LH/EH/MH DVR series
- Max 32TB support interfaced with HD DVR series

Dimension (unit:mm)

446.4
500
486.4
44

Front

Back
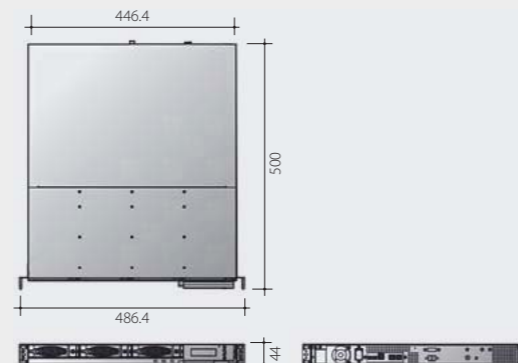
Specifications

ELECTRICAL

Form-factor	1U 19-inch rackmount chassis
RAID processor	Integrated Micro Processor
RAID level	0, 1, 3, 5, 10, Large
No. of channels (host+drive)	1 + 4
Host bus interface	eSATA x 1, USB 3.0 x 1, 1394b x 2
Drive bus interface	SATA II (Up to 3.0Gbps)
Data transfer rate	Up to 3Gbps (eSATA)
	Up to 5Gbps (USB 3.0)
	Up to 800Mbps (1394b)
Hot-swap drive trays	Four(4) 3.5-inch Disk trays
Cooling fan	1
Management Interface	Locally RAID Level Switch / In-Band GUI
Failed drive indicators	Yes
Failed drive auto rebuild	Yes
Environment monitor	Yes
Auto spare support	Yes
Power supply	220W with PFC
	AC 90V ~ 264V Full Range
	3A~5A, 50~60Hz

ENVIRONMENTAL

|	
Relative Humidity	10% ~ 85% Non-condensing
Operating Temperature	10°C ~ 40°C (50°F ~ 104°F)
Physical Dimensions	486.4(W) x 500(D) x 44(H) mm
Weight	6.8kg (without HDD)

ES0212   e-SATA RAID Subsystem

Key Features

- 2U/12Bays, eSATA - SATA II RAID sub-system
- RAID 0,1,10(1E),3,5,6 and JBOD
- Redundant power supplier
- eSATA (3Gbps) host interface
- Max. 8TB support interfaced with LH/EH/MH DVR series
- Max 32TB support interfaced with HD DVR series
- Hot-spare and auto rebuild
- Inside buzzer alarm
- Password protection
- Serial port for external event notification
- Smart LCD panel
- Real-time drive and status notification
- Web base GUI management utility

Dimension (unit:mm)

446

500

482

88
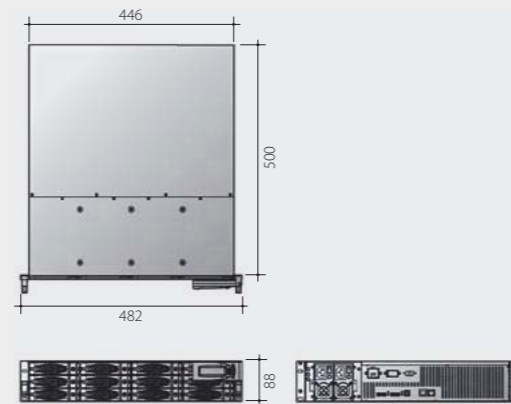
Specifications

ELECTRICAL

|	
Form-factor	2U 19-inch rackmount chassis
RAID processor	400MHz storage I/O processor
RAID level	0 , 1 , 10 (1E) , 3 , 5 , 6 and JBOD
Cache memory	256MB
No. of channels (host+drive)	4+12
Host bus interface	USB 2.0 / eSATA x 2 / iSCSI
	*Only eSATA is suitable for DVR connection
Drive bus interface	SATA II (Up to 3.0 Gbps)
Data transfer rate	Support up to 480 Mbps (USB 2.0)
	Support up to 3.0 Gbps (SATA II)
	Support 10 / 100 / 1000 Mbps Ethernet
Hot-swap drive trays	Twelve (12) 1-inch trays
Cooling fan	2
Password protection	Yes
Audible alarm	Yes
Failed drive indicators	Yes
Failed drive auto rebuild	Yes
Online consistency check	Yes
Online expansion	No
Array Roaming	Yes
Online RAID level/ stripe size migration	Yes
Instant availability and background initialization	Yes
Environment monitor	Yes
Auto spare support	Yes
Bad block auto-remapping	Yes
Remote management	Yes
MAID support	Yes
Over 2TB support	Yes
Power supplies	400W x2 redundant power supplies w/PFC
Power requirements	AC 100V ~ 240V +/-10% Full range, 6A ~ 3A, 50Hz ~ 60Hz

ENVIRONMENTAL

Relative Humidity	10% ~ 85% Non-condensing
Operating Temperature	10°C ~ 40°C (50°F ~ 104°F)
Physical Dimensions	482(W) x 500(D) x 88(H) mm
Weight	14.4kg (without HDD)

HD-CCTV
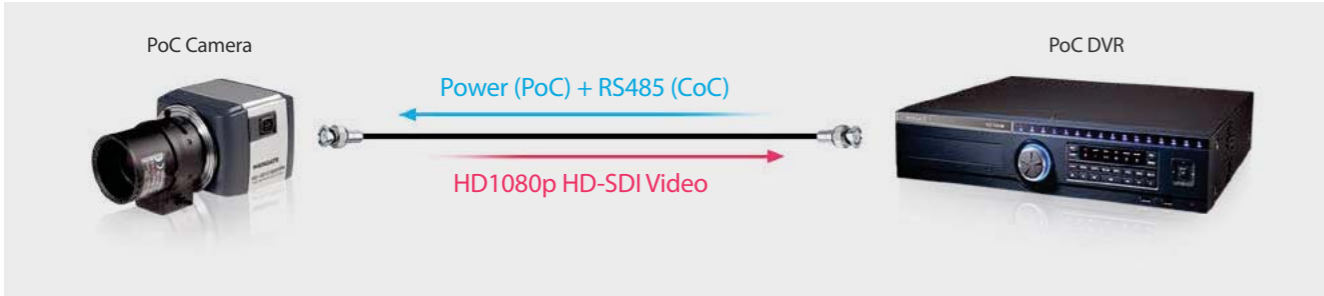# CAMERA

1080p Full HD
Anti-Motion blur
SMART IR-LED Control
Digital **Slow Shutter**
Auto Focus
PoC/CoC
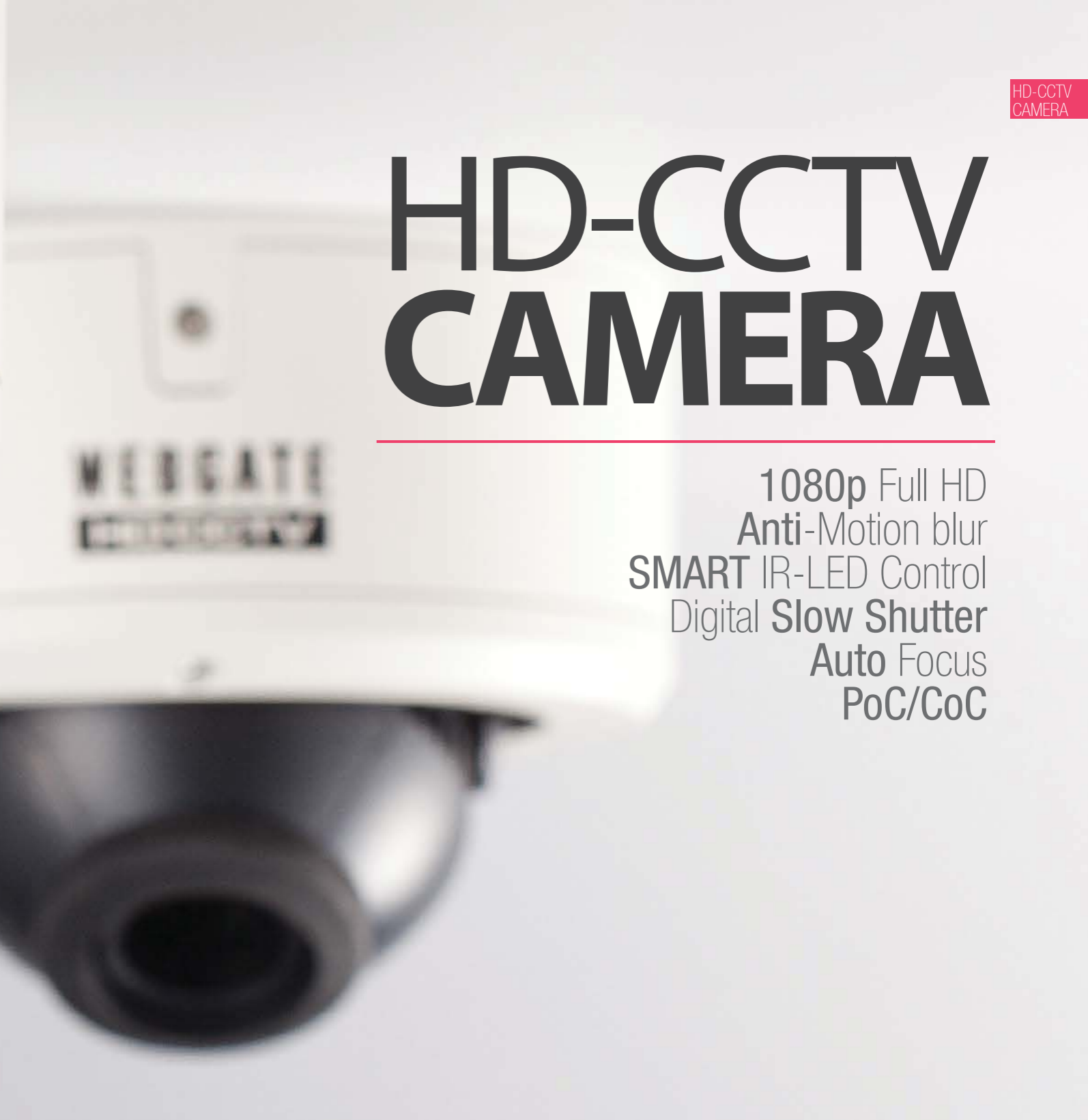
HD-CCTV Camera **Features**

True Plug & Play Support

PoC camera's operating power is supplied from PoC DVR through coaxial cable. That is, cameras do not need additional installation of power supply, and just connecting coaxial cable, you can get Full-HD 1080p high-resolution video.
Also, PoC camera's control commands can receive through same coaxial cable. Because it helps easy control of Zoom/Focus and OSD menu, it increases the operational efficiency.

PoC Camera
PoC DVR
Power (PoC) + RS485 (CoC)
HD1080p HD-SDI Video

Easy Installation and maintenance of PoC camera

Once a PoC camera is connected to a PoC DVR, DVR can control all camera functions including OSD menu without additional cable installation. Also, a wired remote controller is provided with a PoC camera to support easier installation.

DVR interface : Remote camera control by DVR

If PoC cameras are connected to a PoC DVR directly or if Non-PoC cameras are connected to a DVR by serial communication, DVR can control all the OSD menu of camera, and allow user to upgrade camera firmware. By this function, user can even manage the camera through network. In case of -AF models, users can control camera's zoom and Focus.

PoC Cameras
PoC DVR
OSD Control/Firmware Upgrade & Zoom/Focus Control
Ethernet
Non-PoC Cameras
RS485
OSD Control/Firmware Upgrade & Zoom/Focus Control
RS485
Non-PoC DVR
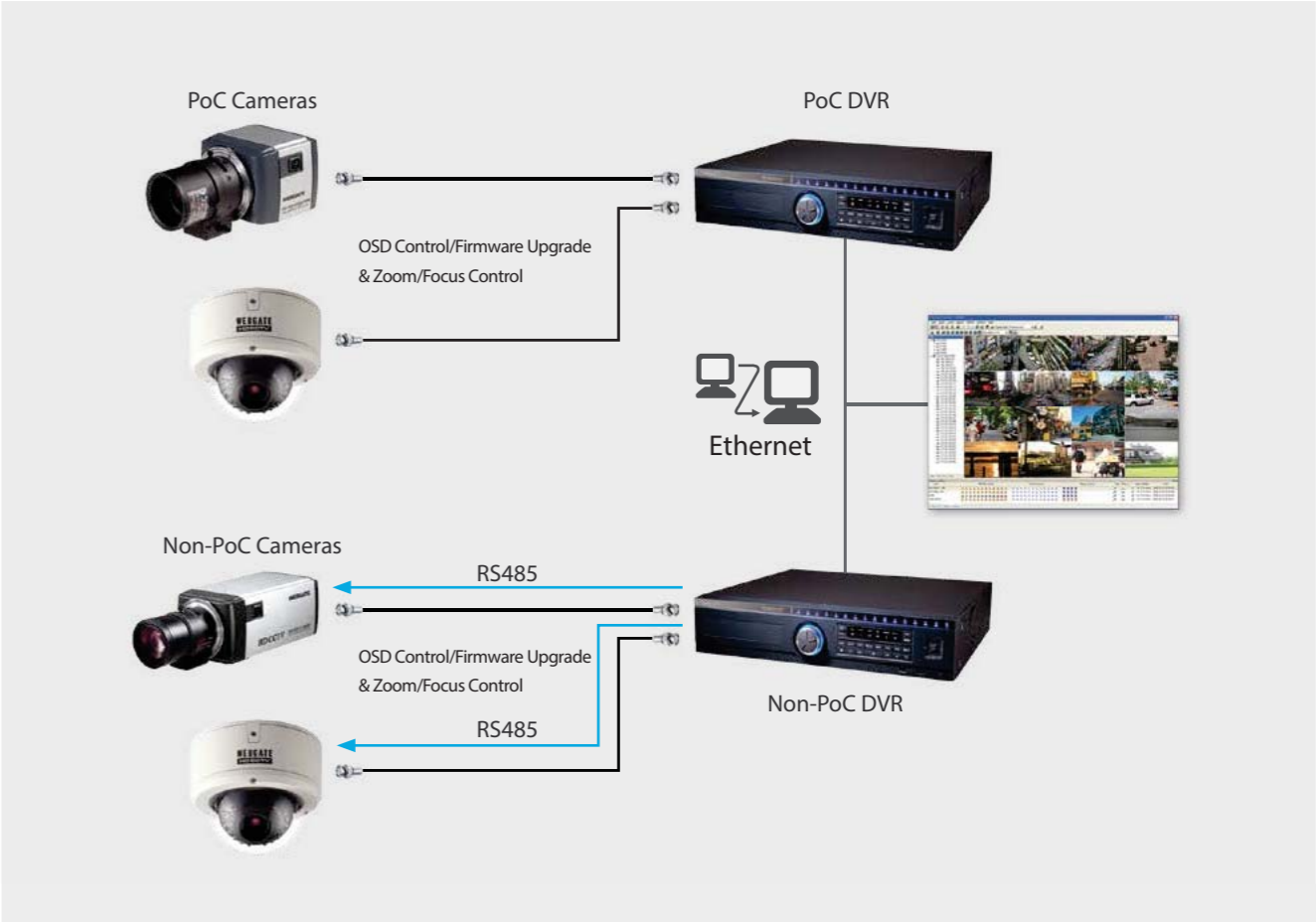
HD-CCTV Camera **Features**

High-Resolution : Provides 1,200TV Line

All HD-CCTV camera products provide high-quality Full-HD(1920 x 1080) video image.
They uses state-of-the-art signal processing technology to show excellent video.
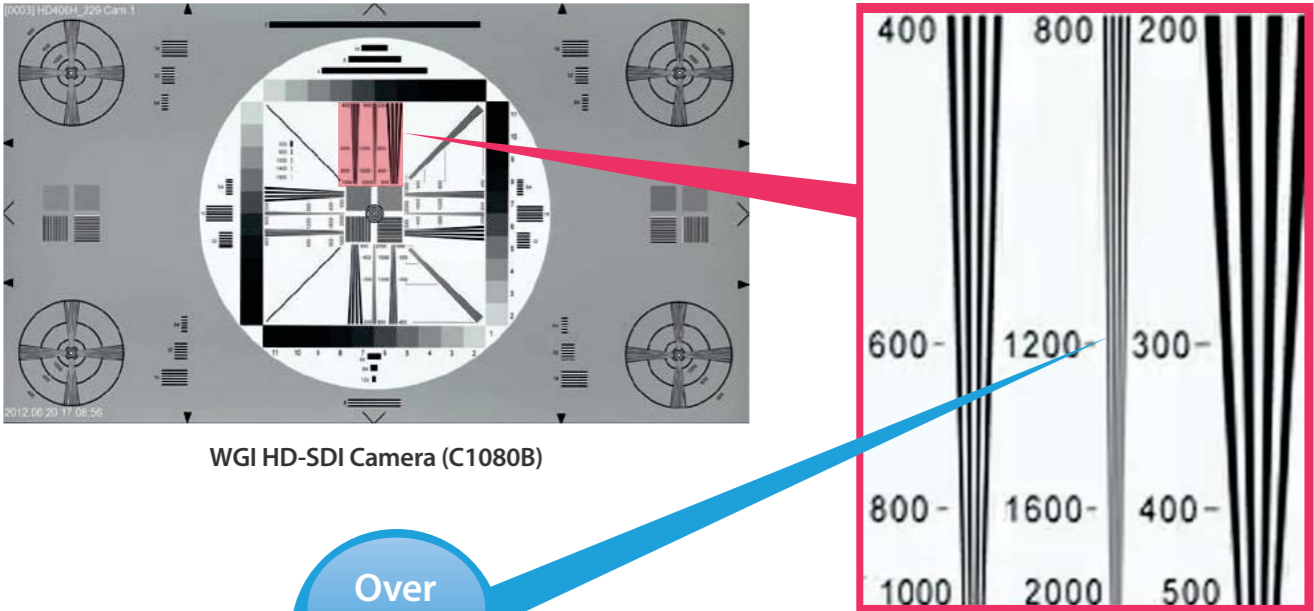
WGI HD-SDI Camera (C1080B)

Over 1,200 TV Line

Auto Focus : Auto Focus by one-push

AF series cameras support auto focus function. To adjust focus of HD camera is very difficult working at actual installation site. Auto focus solution can help users to get the best HD video image without complicated adjustments. And also, if PoC cameras are connected a PoC DVR, user can control camera OSD menu, Zoom/Focus through coaxial cable without additional cable installation. In case of Non-PoC cameras, if serial cable is connected between camera and DVR, user can control camera.

Before Auto Focus   After Auto Focus

Excellent Sensitivity : Clear image at 0.0005 lux

High-performance signal processing makes camera to have high sensitivity at dark environment where even human eyes cannot identify target object.

(BW: 0.0005Lux / Color: 0.2Lux@50IRE, F1.2, 3100K, DSS off)
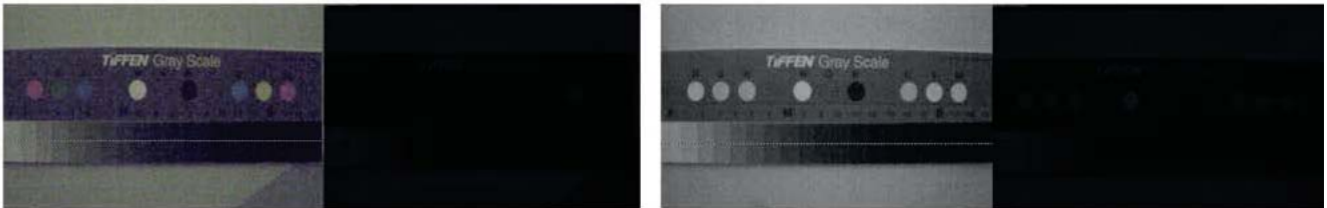
WGI C1080B (2M, CMOS, 0.2Lux)   "S" Camera (2M, CMOS, 1.0Lux)   WGI C1080B (2M, CMOS, 0.0005Lux)   "S" Camera (2M, CMOS, 0.1Lux)

Test Environment: 0.08 Lux Color Mode - F1.2, Fluorescent   Test Environment: 0.005 Lux B/W Mode - F1.2, Fluorescent

HD-CCTV Camera **Features**

Anti-Motion blur : Delivers more clear image for a moving object

Clear images, without motion blurring, are provided using highly performed new video signal processing.

[Indoor Mode]
This mode minimizes the motion blurring in indoor environment like entrance or corridor.

Motion Blur

Anti-Motion Blur

[Outdoor Mode]
This mode minimizes the motion blurring at outdoor environment, and it is especially useful for the license plate recognition on the road. This function also minimizes the image blurring caused by camera vibration, and provides clear video image.
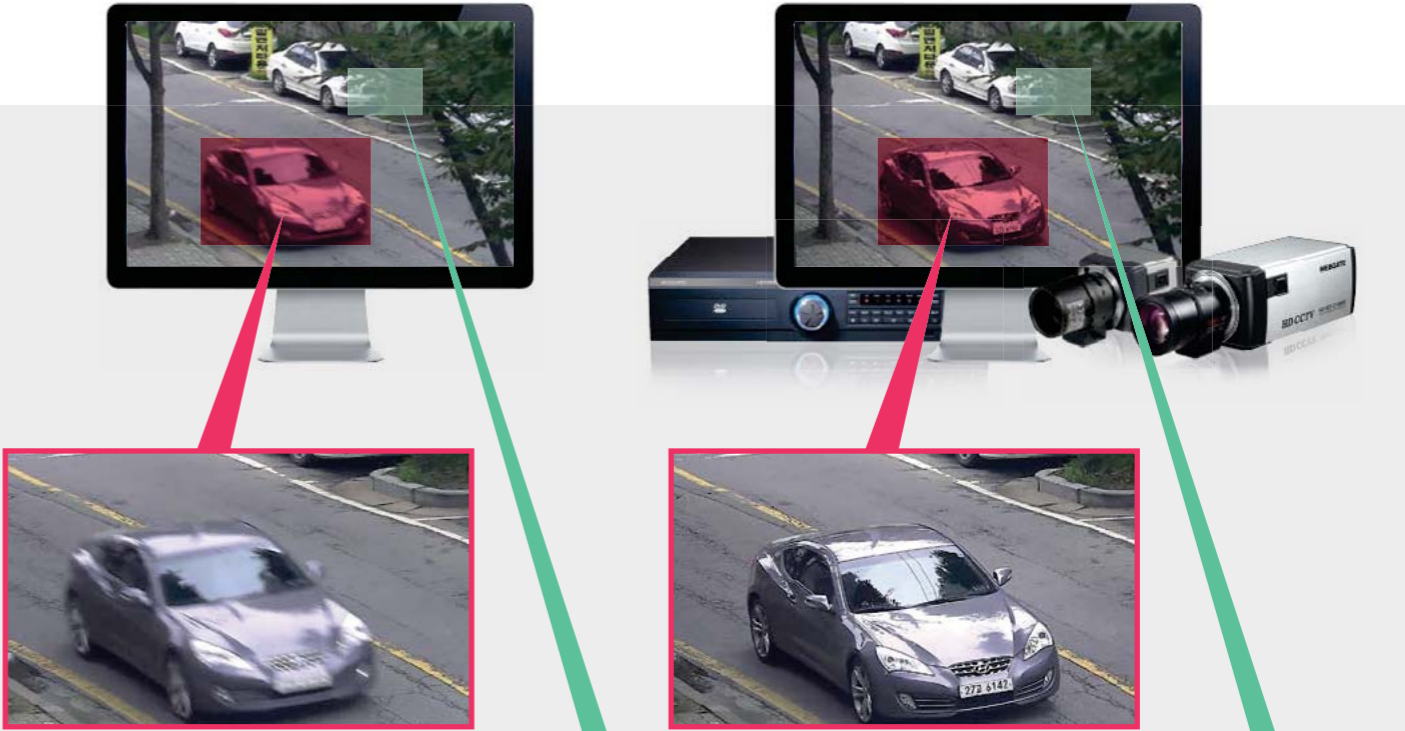
Motion Blur

Anti-Motion Blur

Normal

Anti-Motion Blur

CVBS output : Auxiliary analog video output

All camera models provide CVBS(NTSC/PAL) video signal output to support easy installation.
If use this CVBS output, installer can easily adjust focus and angle of view without using HD video.

WDR : Smart Backlight Compensation

WDR function helps cameras to show clear video images even with very bright and dark scene are mixed in the same image.
Users may select BLC or HLC function according to the installed environment.

WDR OFF   WDR ON

White Balance : Nature color as it is…

Camera delivers natural color images by excellent color reproduction performance against various light conditions.

C1080B(2M, CMOS)   "L" company (2M IP, CMOS)   "G" company (2M HD-SDI, CMOS)

Test Pattern : Color Bar, Stress Pattern

To help checking the quality of HD-SDI transmission cable, cameras support color bar and stress pattern. This is a request from HDcctv Alliance and it also helps to check product's well-working condition. Especially, Stress pattern is the most sensitive video image to cable quality.

Color Bar

Stress Pattern
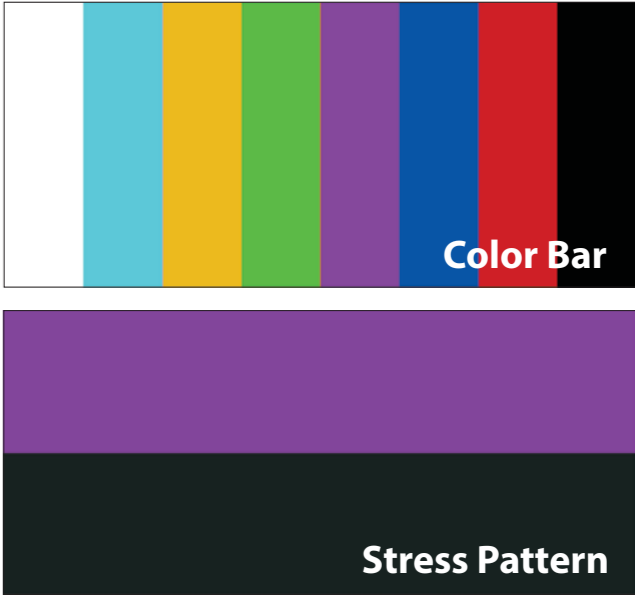
SMART IR-LED : Intelligent brightness control

SMART IR-LED function automatically controls the intensity of IR-LED according to the distance with the target. Cameras can show clear video image without saturation of light at dark environment.

Normal IR-LED   Smart IR-LED
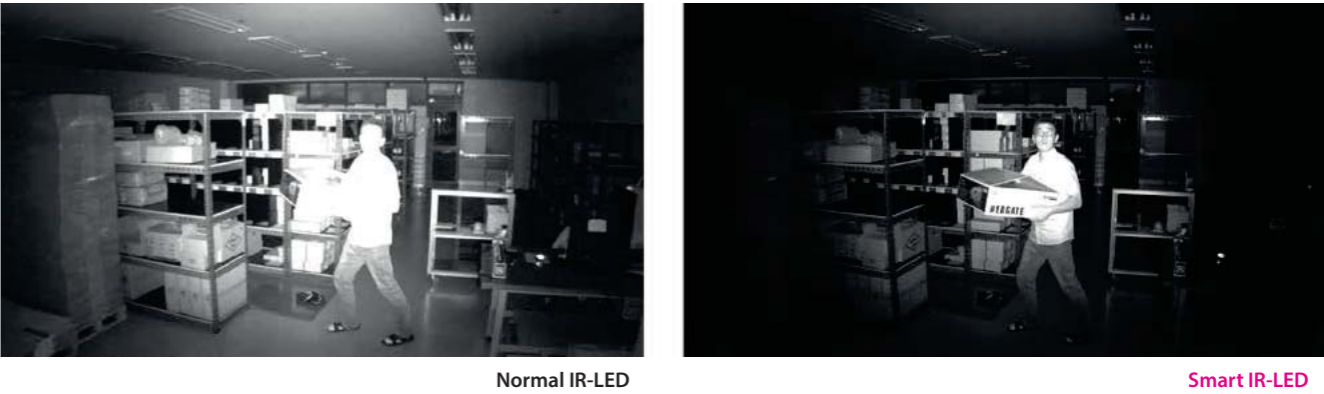
HD-CCTV Camera **Features**

DSS : Digital Slow Shutter (Sense-up)

At very dark environment, DSS function accumulates the light into the sensor pixels, and provides visible video image as a result.
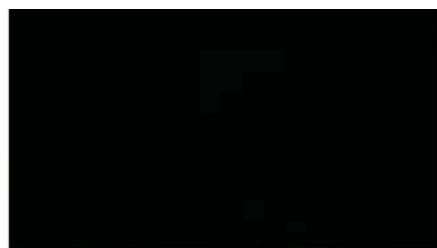

| Light Off, DSS Off | Light Off, DSS ON = 5x | Light Off, DSS ON = 10x |

TDN : True Day & Night

TDN function always provides clear video image by distinguishing daytime and nighttime. In case of night time, TDN mechanism removes IR-CUT filter to gather more light including IR light source.

| Light On, Day Mode (228 Lux) | Light Off, Day Mode (0 Lux) | Light Off, Night Mode (0 Lux) |

3DNR : Powerful 3-Dimensional Digital Noise Reduction

3DNR function removes video noise at dark environment, and it provides clear video image as a result. We adopted 3DNR and it provides better performance than 2DNR.

3DNR function removes video noise at dark environment, providing clear video during low light environment. HD-CCTV cameras adopted 3NDR technology because it surpasses the performance shown in 2DNR.
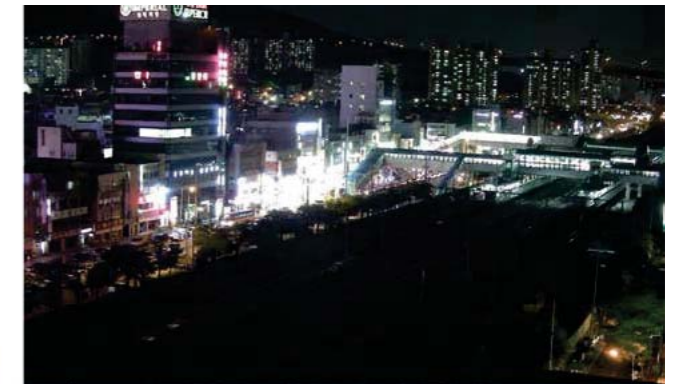
| C1080B 3DNR OFF | C1080B 3DNR ON (high) |

Dual Voltage : DC12V / AC24V

Regarding Non-PoC camera products, users may select either DC12V or AC24V according to the install environment. Both power inputs use same terminal, and camera contains a protection circuit for reverse DC polarity input.

HD-CCTV Camera **Features**

Low power consumption

HD-CCTV cameras show lower power consumption compared to competitors' products. They show lower heating result and because cameras are very sensitive to their installation environment, we significantly increased the reliability of products.

LOW
Electric Power
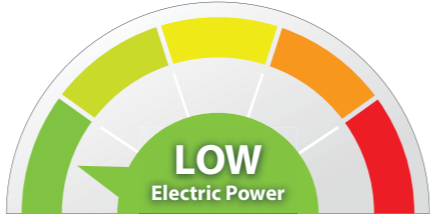
Excellent mechanical design

Dome type camera's 3-axis gimbal provides easy installation.
Box type camera's front case keeps lens exactly perpendicular to sensor, and it provides homogeneous focus over the whole video image.
Bullet type camera requires only one screw to fix its position, which is also convenient when it comes to installation.

Box Camera (Patent pending: 10-2011-0014790)
Title: Design of camera front case
Substance: Mechanical design which keeps the center of image sensor and lens for fine focusing. The design minimized the mechanical error.

Bullet Camera (Patent No. : 10-1018881)
Title: CCTV Bracket
Substance: Mechanical design fixing 3-axis with ease which is used for adjusting of angle of view.

Product Family : HD Camera

There are diverse PoC and Non-PoC camera models composed of box, indoor/outdoor dome, bullet and PTZ. Especially, dome and bullet camera models support IR-LED and Auto focus function and help easy installation and maintenance.

type	Appearance	PoC Model	Non-PoC Model
BOX		C1080PBM	
			C1080B
Plastic Dome		C1080PD, C1080PD-AF C1080PD-IR, C1080PD-IR-AF	C1080D, C1080D-AF C1080D-IR, C1080D-IR-AF
Vandal Dome		C1080PVD, C1080PVD-AF C1080PVD-IP, C1080PVD-IP	C1080VD, C1080VD-AF C1080VD-IR, C1080VD-IR-AF
Bullet		C1080PBL-IR18 C1080PBL-IR18-AF C1080PBL-IR48-AF	C1080BL-IR18 C1080BL-IR18-AF C1080BL-IR48-AF
PTZ			C1080PT-Z20* C1080PT-Z20F*

All models acquired HDcctv 1.0 certificate (Except * marked 2 models)

C1080B High-Definition Box Camera

Key Features

- Certified by HDcctv Alliance
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p30/25 & 720p30/25 video output
- Horizontal/Vertical resolution over 1200TV lines
- High-performance under low light environment
  (BW : 0.0005Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur function
- Remote OSD control & camera upgrade through RS485 from DVR
- DC Iris & C/CS mountable (C-Adaptor Ring)
- Supports Test Patterns (Color bar, Stress Pattern)

Dimension (unit:mm)

63

68   150
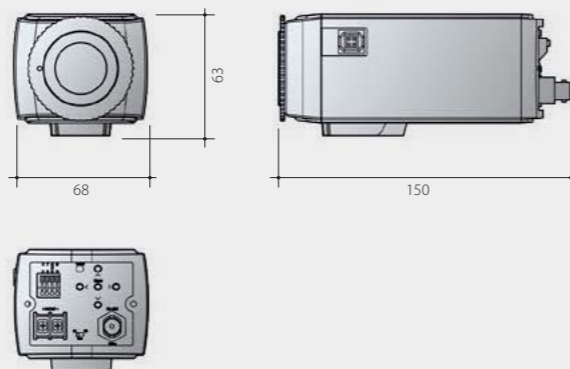
Specifications

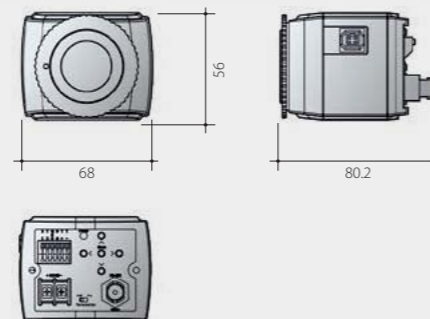| VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	B/W	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	Mount	CS/ C(Ring Adaptor)
	Filter	True Day & Night (ICR)
	type	DC Auto Iris, Manual
Video Output	Output	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30/25fps, 720p 30/25fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) via RG6, 150m(490 ft.) via RG59
Video Control	Control Method	OSD(5 Push Buttons), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 step
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12steps)
	D-ZOOM	0 ~ 16 steps
	ANTI-FLICKER	OFF, ON
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF, ON (28 Zones)
CONTROL INTERFACE		
RS232		Debug
RS485		Upgrade Firmware / OSD Control
Strobe for external light		TTL level
ELECTRICITY		
Power Consumption		DC 12V ± 10%, 4W
MECHANICAL		
Dimension		68(W) x 150(D) x 63(H) mm
Weight		350g (Lens not included)
ENVIRONMENTS		
Operation Temp. / Humidity		-10 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS, HDcctv

HD-CCTV **CAMERA**

C1080PBM   High-Definition Box Camera (PoC & DC12V Support)

Key Features

- Certified by HDcctv Alliance
- Camera power supply through Coax (PoC) or DC12V input
- OSD control, Firmware upgrade through Coax (CoC) & supports additional RS485 port
- 1/3", 2.1M CMOS progressive image sensor
- HD-SDI 1080p30/25 & 720p30/25 video output
- Horizontal/Vertical resolution over 1200TV lines
- Superior Sensitivity (BW: 0.0005Lux/Color: 0.2Lux@50IRE, F1.2, 3100K, DSS Off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/ BLC/ HLC
- Privacy zone masking (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur function for fast moving object
- De-Fog function
- Test Pattern output (Color bar, Stress Pattern)
- Provides wired remote controller for OSD control and CVBS output
- DC Iris & C/CS mount Lens applicable (C-Adaptor Ring)

Dimension (unit:mm)

56

68   80.2

Specifications

VIDEO

Camera Models		PoC	Non-PoC
		C1080PBM	
Sensor Type		1/3" 2.1Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)	
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)	
Lens	Mount	CS/ C(Ring Adaptor)	
	Filter	True Day & Night (ICR)	
	type	DC Auto Iris, Manual	
Video Output	Output	1(BNC 1.0 Vp-p, 75Ω)	
	Resolution	1080p 30/25fps, 720p 30/25fps	
	HD-SDI	SMPTE 292M compatible	
	Distance	Max. 200m(650ft) video transmission through 5C-HFBT cable	
Video Control	Control Method	OSD Menu, DVR (Supporting remote control via CoC), CMS (Control Center)	
	AGC	1 ~ 10 steps	
	Mirror	Horizontal / Vertical	
	WDR	OFF, 0 ~ 4 step	
	BLC	OFF, LOW, MIDDLE, HIGH	
	ACE	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	DSS	OFF, Auto, x2 ~ x10 steps	
	White Balance	AUTO, PRESET, MANUAL	
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12 steps)	
	D-ZOOM	0 ~ 16 steps	
	ANTI-FLICKER	OFF, ON	
	Lens Shading	OFF, ON	
	HLC	0 ~ 10 steps	
	DE-FOG	OFF, ON (Auto / Manual)	
	Privacy	OFF, ON (15 Zones)	

CONTROL INTERFACE

Control	CoC (Control over Coax) / RS485

ELECTRICITY

Power Consumption	PoC(DC24V ± 10%), 3W / DC 12V ± 10%, 2W

MECHANICAL

Dimension	68(W) x 80.2(D) x 56(H) mm
Weight	320g (Lens not included)

ENVIRONMENTS

Operation Temp. / Humidity	-10 ºC ~ 50 ºC / 0%RH ~ 80%RH

CERTIFICATIONS

Certifications	KC, FCC, CE, RoHS, HDcctv

C1080PD / C1080D
C1080PVD / C1080VD

High-Definition Dome Camera
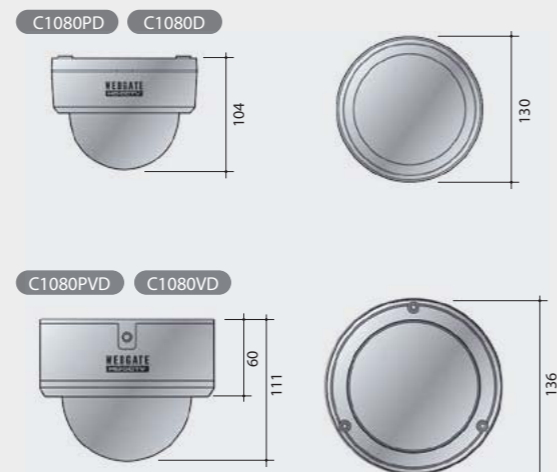
C1080PVD / C1080VD

C1080PD / C1080D

Key Features

[PoC Cameras : C1080PD, C1080PVD]
- Camera power supply through coax (PoC)
- OSD control, Firmware upgrade through coax (CoC)
- Provides wired remote controller for OSD control and CVBS output

[Common Features]
- Certified by HDcctv Alliance
- 1/3", 2.1M CMOS progressive image sensor
- HD-SDI 1080p30/25&720p30/25 video output
- DC Iris, 2.8mm~11mm, F1.4, IR Corrective Megapixel Lens
- Horizontal/Vertical resolution over 1200TV lines
- Superior Sensitivity (BW: 0.0005 Lux/Color: 0.2Lux@50IRE, F1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone masking (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur function for fast moving object
- De-Fog function
- Test Pattern output (Color bar, Stress Pattern)
- Dustproof, Waterproof of IP66 (C1080PVD/C1080VD)

Dimension (unit:mm)

C1080PD   C1080D

104   130

C1080PVD   C1080VD

60   111   136

Specifications

VIDEO			
Camera Models		**PoC**	**Non-PoC**
		C1080PD / C1080PVD	C1080D / C1080VD
Sensor Type		1/3", 2.1Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.0005Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
	Color	0.2Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
Lens	Mount	D-Mount	
	Filter	True Day & Night (ICR)	
	type	DC Iris, 2.8~11mm, F1.4, IR Corrective Megapixel Lens	
Video Output	Output	1 (BNC 1.0 Vp-p, 75Ω)	
	Resolution	1080p 30/25fps, 720p 30/25fps	
	HD-SDI	SMPTE 292M compatible	
	Distance	Max. 200m(650ft) video transmission through 5C-HFBT cable	
Video Control	Control Method	OSD Menu, DVR (Supporting remote control via CoC), CMS(Control Center)	
	AGC	1 ~ 10 steps	
	Mirror	Horizontal / Vertical	
	WDR	OFF, 0 ~ 4 step	
	BLC	OFF, LOW, MIDDLE, HIGH	
	ACE	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	DSS	OFF, Auto, x2 ~ x10 steps	
	White Balance	AUTO, PRESET, MANUAL	
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12 steps)	
	D-ZOOM	0 ~ 16 steps	
	ANTI-FLICKER	OFF, ON	
	Lens Shading	OFF, ON	
	HLC	0 ~ 10 steps	
	DE-FOG	OFF, ON (Auto / Manual)	
	Privacy	OFF, ON (15 Zones)	
CONTROL INTERFACE			
Control		CoC (Control over Coax)	RS485
ELECTRICITY			
Power Consumption		PoC(DC24V ± 10%), 3W	DC 12V ± 10%, 3W / AC 24V ± 10%, 4W
MECHANICAL			
Dimension	C1080PD/D	130(ø) x 104(H)mm	
	C1080PVD/VD	136(ø) x 111(H)mm	
Weight	C1080PD/D	360g	
	C1080PVD/VD	760g	
ENVIRONMENTS			
Operation Temp. / Humidity		-10 ºC ~ 50 ºC / 0%RH ~ 80%RH	
CERTIFICATIONS			
Certifications		KC, FCC, CE, RoHS, HDcctv	

HD-CCTV **CAMERA**

C1080PD-IR / C1080D-IR

C1080PVD-IR / C1080VD-IR

C1080PD-IR / C1080D-IR
C1080PVD-IR / C1080VD-IR IR-LED High-Definition Dome Camera
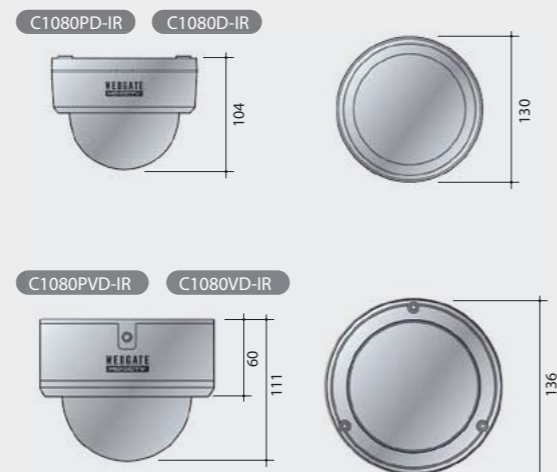
Key Features

[PoC Camera : C1080PD-IR, C1080PVD-IR]
- Camera power supply through coax (PoC)
- OSD control, Firmware upgrade through coax (CoC)
- Provides wired remote controller for OSD control and CVBS output

[Common Features]
- Certified by HDcctv Alliance
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 Video Output
- DC Iris, 2.8mm~11mm, F1.4, IR Corrective Megapixel Lens
- Horizontal/Vertical resolution over 1200TV line
- Superior Sensitivity (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone masking (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur function for fast moving object
- De-Fog function
- Smart IR function (No Saturation)
- Test Pattern output (Color bar, Stress Pattern)
- Dust-proof/Water-proof of IP66 (C1080PVD-IR/C1080VD-IR)
- 3-axis gimbal structure for easy installation
- Built-in IR LED : 24pcs, Visible length : up to 30m

Dimension (unit:mm)

C1080PD-IR   C1080D-IR

104   130

C1080PVD-IR   C1080VD-IR

60   111   136

Specifications

VIDEO

Camera Models		PoC	Non-PoC
		C1080PD-IR, C1080PVD-IR	C1080D-IR, C1080VD-IR
Sensor Type		1/3" 2.1Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.0005Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
	Color	0.2Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
Lens	Mount	D-Mount	
	Filter	True Day & Night (ICR)	
	type	DC Iris, 2.8~11mm, F1.4, IR Corrective Megapixel Lens	
Video Output	Output	1 (BNC 1.0 Vp-p, 75Ω)	
	Resolution	1080p 30/25fps, 720p 30/25fps	
	HD-SDI	SMPTE 292M compatible	
	Distance	Max. 200m(650ft) video transmission through 5C-HFBT cable	
Video Control	Control Method	OSD Menu, DVR (Supporting remote control via CoC), CMS(Control Center)	
	AGC	1 ~ 10 steps	
	Mirror	Horizontal / Vertical	
	WDR	OFF, 0 ~ 4 step	
	BLC	OFF, LOW, MIDDLE, HIGH	
	ACE	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	DSS	OFF, Auto, x2 ~ x10 steps	
	White Balance	AUTO, PRESET, MANUAL	
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12 steps)	
	D-ZOOM	0 ~ 16 steps	
	ANTI-FLICKER	OFF, ON	
	Lens Shading	OFF, ON	
	HLC	0 ~ 10 steps	
	DE-FOG	OFF, ON (Auto / Manual)	
	Privacy	OFF, ON (15 Zones)	

LIGHT

IR Light Source	24pcs, 850nm, 60°, control by visible light sensor, max. 30m	

CONTROL INTERFACE

Control	CoC (Control over Coax)	RS485

ELECTRICITY

Power Consumption	PoC(DC24V ± 10%), 4W	DC 12V ± 10%, 4W / AC 24V ± 10%, 5W

MECHANICAL

Dimension	C1080PD/D	130(ø) x 104(H)mm
	C1080PVD/VD	136(ø) x 111(H)mm
Weight	C1080PD/D	370g
	C1080PVD/VD	770g

ENVIRONMENTS

Operation Temp. / Humidity	-10 °C ~ 50 °C / 0%RH ~ 80%RH	

CERTIFICATIONS

Certifications	KC, FCC, CE, RoHS, HDcctv	

HD-CCTV **CAMERA**

C1080PD-AF / C1080D-AF

C1080PVD-AF / C1080VD-AF

C1080PD-AF / C1080D-AF
C1080PVD-AF / C1080VD-AF

Auto Focus High-Definition Dome Camera

Key Features

[PoC Cameras : C1080PD-AF, C1080PVD-AF]
- Camera power supply through coax (PoC)
- Zoom/Focus, OSD control, Firmware upgrade through coax (CoC)
- Provides wired remote controller for OSD control and CVBS output

[Common Features]
- Certified by HDcctv Alliance
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p30/25 & 720p30/25 Video Output
- DC Iris, 2.8mm~11mm, F1.4, IR Corrective Megapixel Lens
- One-Push Auto Focus, Zoom/Focus Control
- Horizontal/Vertical resolution over 1200TV lines
- Superior Sensitivity (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.2, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone masking (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur function for fast moving object
- De-Fog Function
- Test Pattern output (Color bar, Stress Pattern)
- Dust-proof, Water-proof of IP66 (C1080PVD-AF/C1080VD-AF)

Dimension (unit:mm)

C1080PD-AF   C1080D-AF

104 / 130

C1080PVD-AF   C1080VD-AF

60 / 111 / 136
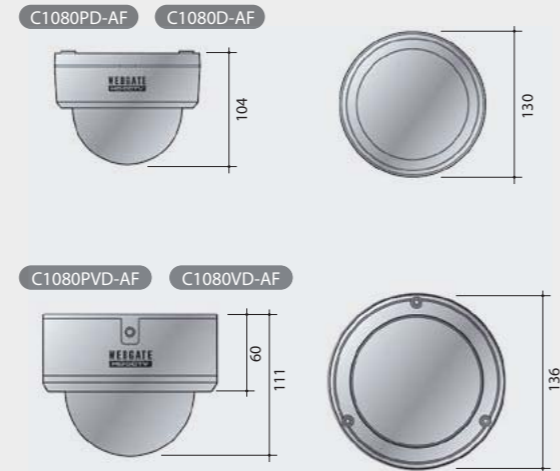
Specifications

VIDEO

Camera Models		PoC	Non-PoC
		C1080PD-AF, C1080PVD-AF	C1080D-AF, C1080VD-AF
Sensor Type		1/3" 2.1Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.0005Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
	Color	0.2Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
Lens	Mount	D-Mount	
	Filter	True Day & Night (ICR)	
	type	DC Iris, 2.8~11mm, F1.4, IR Corrective Megapixel Lens	
Video Output	Output	1 (BNC 1.0 Vp-p, 75Ω)	
	Resolution	1080p 30/25fps, 720p 30/25fps	
	HD-SDI	SMPTE 292M compatible	
	Distance	Max. 200m(650ft) video transmission through 5C-HFBT cable	
Video Control	Control Method	OSD Menu, DVR (Supporting remote control via CoC), CMS(Control Center)	
	AGC	1 ~ 10 steps	
	Mirror	Horizontal / Vertical	
	WDR	OFF, 0 ~ 4 step	
	BLC	OFF, LOW, MIDDLE, HIGH	
	ACE	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	DSS	OFF, Auto, x2 ~ x10 steps	
	White Balance	AUTO, PRESET, MANUAL	
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12 steps)	
	D-ZOOM	0 ~ 16 steps	
	ANTI-FLICKER	OFF, ON	
	Lens Shading	OFF, ON	
	HLC	0 ~ 10 steps	
	DE-FOG	OFF, ON (Auto / Manual)	
	Privacy	OFF, ON (15 Zones)	

CONTROL INTERFACE

Control	CoC (Control over Coax)	RS485

ELECTRICITY

Power Consumption	PoC(DC24V ± 10%), 3W	DC 12V ± 10%, 3W / AC 24V ± 10%, 4W

MECHANICAL

Dimension	C1080PD/D	130(ø) x 104(H)mm	
	C1080PVD/VD	136(ø) x 111(H)mm	
Weight	C1080PD/D	370g	
	C1080PVD/VD	770g	

ENVIRONMENTS

Operation Temp. / Humidity	-10 ºC ~ 50 ºC / 0%RH ~ 80%RH

CERTIFICATIONS

Certifications	KC, FCC, CE, RoHS, HDcctv

HD-CCTV **CAMERA**

C1080PD-IR-AF
C1080D-IR-AF

C1080PVD-IR-AF
C1080VD-IR-AF

C1080PD-IR-AF / C1080D-IR-AF
C1080PVD-IR-AF / C1080VD-IR-AF IR-LED, Auto Focus High-Definition Dome Camera
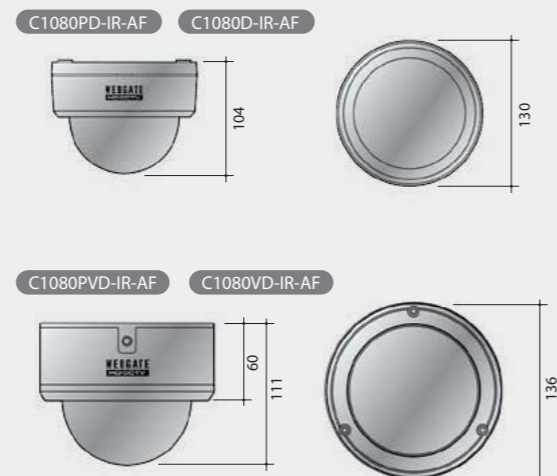
Key Features

[PoC Camera : C1080PD-IR-AF, C1080PVD-IR-AF]
- Camera power supply through coax (PoC)
- Zoom/Focus, OSD control, Firmware upgrade through coax (CoC)
- Provides wired remote controller for OSD control and CVBS output
[Common Features]
- Certified by HDcctv Alliance
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p30/25 & 720p30/25 Video Output
- DC Iris, 2.8mm~11mm, F1.4, IR Corrective Megapixel Lens
- One-Push Auto Focus, Zoom/Focus Control
- Horizontal/Vertical resolution over 1200TV lines
- Superior Sensitivity (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone masking (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for fast moving object
- De-Fog function
- Smart IR function (No Saturation)
- Test Pattern output (Color bar, Stress Pattern)
- Dust-proof, Water-proof of IP66 (C1080PVD-AF/C1080VD-AF)
- Built-in IR LED : 24pcs, Visible length : up to 30m

Dimension (unit:mm)

C1080PD-IR-AF   C1080D-IR-AF

104 / 130

C1080PVD-IR-AF   C1080VD-IR-AF

60 / 111 / 136

Specifications

VIDEO

Camera Models		PoC	Non-PoC
		C1080PD-IR-AF, C1080PVD-IR-AF	C1080D-IR-AF, C1080VD-IR-AF
Sensor Type		1/3" 2.1Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.0005Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
	Color	0.2Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
Lens	Mount	D-Mount	
	Filter	True Day & Night (ICR)	
	type	DC Iris, 2.8~11mm, F1.4, IR Corrective Megapixel Lens	
Video Output	Output	1 (BNC 1.0 Vp-p, 75Ω)	
	Resolution	1080p 30/25fps, 720p 30/25fps	
	HD-SDI	SMPTE 292M compatible	
	Distance	Max. 200m(650ft) video transmission through 5C-HFBT cable	
Video Control	Control Method	OSD Menu, DVR (Supporting remote control via CoC), CMS(Control Center)	
	AGC	1 ~ 10 steps	
	Mirror	Horizontal / Vertical	
	WDR	OFF, 0 ~ 4 step	
	BLC	OFF, LOW, MIDDLE, HIGH	
	ACE	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	DSS	OFF, Auto, x2 ~ x10 steps	
	White Balance	AUTO, PRESET, MANUAL	
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12 steps)	
	D-ZOOM	0 ~ 16 steps	
	ANTI-FLICKER	OFF, ON	
	Lens Shading	OFF, ON	
	HLC	0 ~ 10 steps	
	DE-FOG	OFF, ON (Auto / Manual)	
	Privacy	OFF, ON (15 Zones)	

LIGHT

IR Light Source	24pcs, 850nm, 60º, control by visible light sensor, max. 30m	

CONTROL INTERFACE

Control	CoC (Control over Coax)	RS485

ELECTRICITY

Power Consumption	PoC(DC24V ± 10%), 4W	DC 12V ± 10%, 4W / AC 24V ± 10%, 6W

MECHANICAL

Dimension	C1080PD/D	130(ø) x 104(H)mm	
	C1080PVD/VD	136(ø) x 111(H)mm	
Weight	C1080PD/D	380g	
	C1080PVD/VD	780g	

ENVIRONMENTS

Operation Temp. / Humidity	-10 ºC ~ 50 ºC / 0%RH ~ 80%RH	

CERTIFICATIONS

Certifications	KC, FCC, CE, RoHS, HDcctv	

HD-CCTV **CAMERA**

C1080PBL-IR48-AF
C1080BL-IR48-AF

C1080PBL-IR18/C1080BL-IR18
C1080PBL-IR18-AF/ C1080BL-IR18-AF

C1080PBL-IR18 / C1080BL-IR18
C1080PBL-IR18-AF / C1080BL-IR18-AF
C1080PBL-IR48-AF / C1080BL-IR48-AF IR-LED, Auto Focus High-Definition Bullet Camera

Key Features

[PoC Camera : C1080PBL-IR18(-AF), C1080PBL-IR48-AF]
- Camera power supply through Coax (PoC)
- Zoom/Focus, OSD control, Firmware upgrade through Coax (CoC)
- Provides wired remote controller for OSD control and CVBS output
[Common Featrues]
- Certified by HDcctv Alliance
- 1/3", 2.1M CMOS progressive image sensor
- HD-SDI 1080p30/25 & 720p30/25 Video Output
- DC Iris, 2.8mm~11mm, F1.4, IR Corrective Megapixel Lens
- One-Push Auto Focus, Zoom/Focus Control (-AF Series)
- Horizontal/Vertical resolution over 1200TV lines
- Superior Sensitivity (BW: 0.0005 Lux/ Color: 0.2Lux@50IRE, F1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone masking (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur function for fast moving object
- De-Fog function
- Smart IR function (No Saturation)
- Test Pattern output (Color bar, Stress Pattern)
- All-in-one Bracket & Housing structure supporting IP66
- Built-in IR LED
   C1080PBL-IR18-AF/C1080BL-IR18-AF(18pcs), Visibility : up to 25m
   C1080PBL-IR-48-AF/C1080BL-IR-48-AF(48pcs), Visibility : up to 48m

Dimension (unit:mm)

C1080PBL-IR18 / C1080PBL-IR18-AF
C1080BL-IR18 / C1080BL-IR18-AF

88
118
70
79
120
198

C1080PBL-IR48-AF
C1080BL-IR48-AF

120
140
95
87
133
254
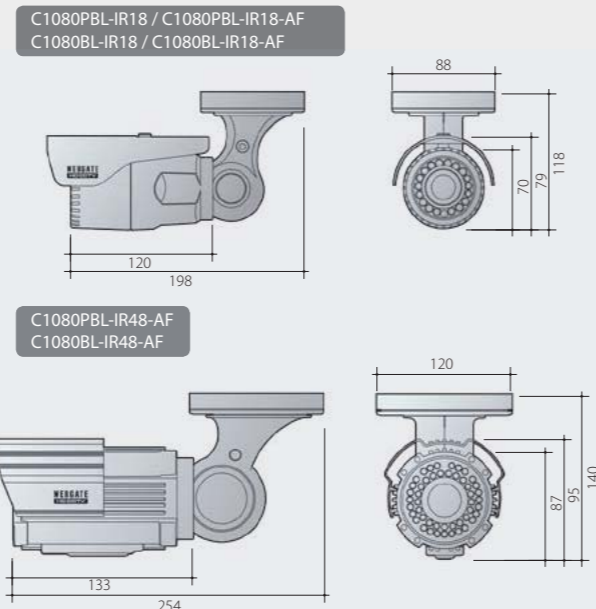
Specifications

VIDEO

Camera Models		PoC	Non-PoC
		C1080PBL-IR18, C1080PBL-IR18-AF, C1080PBL-IR48-AF	C1080BL-IR18, C1080BL-IR18-AF, C1080BL-IR48-AF
Sensor Type		1/3" 2.1Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.0005Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
	Color	0.2Lux@50IRE, F1.4, 3100K, DSS(OFF), AGC(10)	
Lens	Filter	True Day & Night (ICR)	
	Type	DC Iris, 2.8~11mm, F1.4, IR Corrective Megapixel Lens	
Video Output	Output	1 (BNC 1.0 Vp-p, 75Ω)	
	Resolution	1080p 30/25fps, 720p 30/25fps	
	HD-SDI	SMPTE 292M compatible	
	Distance	Max. 200m(650ft) video transmission through 5C-HFBT cable	
Video Control	Control Method	OSD Menu, DVR (Supporting remote control via CoC), CMS(Control Center)	
	AGC	1 ~ 10 steps	
	Mirror	Horizontal / Vertical	
	WDR	OFF, 0 ~ 4 steps	
	BLC	OFF, LOW, MIDDLE, HIGH	
	ACE	OFF, ON	
	DNR	OFF, LOW, MIDDLE, HIGH	
	DSS	OFF, Auto, x2 ~ x10 steps	
	White Balance	AUTO, PRESET, MANUAL	
	Electric shutter	INDOOR, OUTDOOR, INDOOR-ANTI BLUR, OUTDOOR-ANTI BLUR, MANUAL(12 steps)	
	D-ZOOM	0 ~ 16 steps	
	ANTI-FLICKER	OFF, ON	
	Lens Shading	OFF, ON	
	HLC	0 ~ 10 steps	
	DE-FOG	OFF, ON (Auto / Manual)	
	Privacy	OFF, ON (15 Zones)	

CONTROL INTERFACE

Control		CoC (Control over Coax)	RS485

LIGHT

IR Light Source	C1080PBL/BL-IR18 Ser.	18pcs, 850nm, 60°, control by visible light sensor, max. 25m	
	C1080PBL/BL-IR48 Ser.	48pcs, 850nm, 60°, control by visible light sensor, max. 48m	

ELECTRICITY

Power Consumption	C1080PBL/BL-IR18 Ser.	PoC (DC24V ± 10%), 4W	DC12V ± 10%, 4W / AC 24V ± 10%, 6W
	C1080PBL/BL-IR48 Ser.	PoC (DC24V ± 10%), 6W	DC12V ± 10%, 5W / AC 24V ± 10%, 8W

MECHANICAL

Dimension	C1080PBL/BL-IR18 Ser.	88(W) x 118(H) x 198(D) mm	
	C1080PBL/BL-IR48 Ser.	120(W) x 140(H) x 254(D) mm	
Weight	C1080PBL/BL-IR18 Ser.	C1080PBL/BL-IR18 : 710g, C1080PBL/BL-IR18-AF : 720g	
	C1080PBL/BL-IR48 Ser.	1600g	

ENVIRONMENTS

Operation Temp. / Humidity		-10 ºC ~ 50 ºC / 0%RH ~ 80%RH	

CERTIFICATIONS

Certifications		KC, FCC, CE, RoHS, HDcctv	

HD-CCTV **CAMERA**

C1080PT-Z20

Full-HD PTZ Dome Camera

- Outdoor PTZ Dome Camera
- Weather-Proof (IP66)
- Supports Wall-Mount, Ceiling-Mount

C1080PT-Z20F

Full-HD PTZ Dome Camera

- Indoor PTZ Dome Camera
- Supports Flush-Mount

Key Features

- HD-SDI Speed Dome Camera
- 20x Optical Zoom (4.7~94mm) and 12x Digital Zoom
- 1/2.8, 2Megapixel CMOS progressive image sensor
- HD-SDI 1080p or 720p Video Output
- Automatic Pan/Tilt speed control according to zoom magnification
- Pan Speed : Max. 360°/sec
- Manual Speed : Min. 0.05°/sec
- Endless 360° Pan Rotation
- WDR function
- 3D Noise Reduction
- Privacy zone Masking (Up to 8 Area)
- True Day&Night with IR cut filter removable
- 255 Preset, 4 Patterns, 8 Scans and 8 Group functions
- Power-up Action

Dimension (unit:mm)

Wall Mount Bracket

Ceiling Mount Bracket

Flush Mount
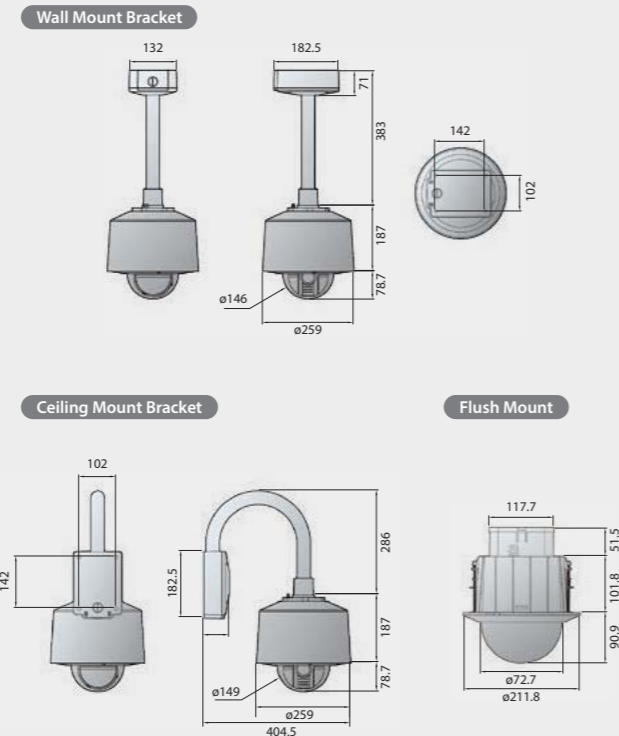
Specifications

VIDEO

Camera Models		C1080PT-Z20	C1080PT-Z20F
Sensor type		1/2.8" 2Megapixel CMOS	
Total Pixels		1920(H) x 1080(V) = 2.1M pixels	
Scanning System		Progressive Scan	
Min illumination	B/W	0.3Lux@50IRE, F1.6, DSS(OFF), High Sensitivity Mode 0.095Lux@F1.6 50IRE	
	Color	1.7Lux@50IRE, F1.6, DSS(OFF), High Sensitivity Mode 0.5Lux@F1.6 50IRE	
Lens	Zoom	20x Optical zoom & 12x Digital zoom	
	Angle of View	H:55.4°(W) ~ 2.9°(T)	
	Facal Length	F1.6 ~ 3.5, f=4.7 ~ 94mm	
Video Output	CVBS Output	1 (BNC 1.0 Vp-p, 75Ω)	
	HD-SDI Resolution	1080p 30/25fps, 720p 60/50fps, 1080i 60/50fps	
	HD-SDI Standard	SMPTE 292M compatible	
	Transmission Distance	Approx. 200m(650 ft.) via RG6, 150m(490 ft.) via RG59	
Video Control	Day&Night	Auto/Day/Night(ICR)	
	Focus	Auto/Manual	
	Exposure Mode	Full Auto/ Shutter/ Iris/ Bright/ Manual	
	White Balance	Auto WB/ Indoor/ Outdoor/ One Push WB/ Manual WB	
	AGC	Auto, Manual (-3~28dB, 16Steps)	
	WDR	Auto/Off	
Pan/Tilt	Range	Pan:360°(Endless), Tilt:180°	
	Pan/Tilt Speed	Preset 400°/sec, Manual:0.05°~200°/sec (Zoom proportional), Scan:1°~180°/sec	
	Preset	255 presets with labels/ Independent camera setup	
	Pattern	4 Patterns(Approx. 5 Minutes for each pattern)	
	Scan	8 Scans	
	Group	8 Groups (max. 20 functions for each group)	
	Other functions	Power-up Action & etc.	

CONTROL INTERFACE

Communication		RS-485	
RS-485 Protocol		Auto(Pelco-D, Pelco-P, Samsung-E can be supported automatically)	

ELECTRICITY

Power Consumption		AC 24V, Max. 55W (Heater 30W)	DC12V / AC24V, Max. 20W

MECHANICAL

Dimension		Dome(ø) : 146mm, Housing(øxH) : 259x266mm	Dome(ø) : 146mm, Net (øxH): 211.8x244.2mm
Weight		Net : 6Kg, Package : 10.9Kg	Net: 1.75Kg, Package: 2.4Kg

ENVIRONMENTS

Operation Temp.		-40 ℃ ~ 50 ℃ / 10%RH ~ 80%RH	-10 ℃ ~ 50 ℃ / 10%RH ~ 80%RH

CERTIFICATIONS

Certifications		FCC, CE, IP66	

HD-CCTV
Converters & etc.

PoC/CoC **Repeater**
DoubleReach Converter
2CH **Distributor**
HD-SDI Repeater
HDMI **Converter**
CVBS **Converter**
Optic **Converter**

HD-CCTV Converter **Features**

Converters for One Cable Solution

PoC/CoC and DoubleReach™ converters help to configure diverse One Cable Solutions

- When using a PoC DVR, up to 2 RP101P (PoC/CoC repeater) can be placed to extend the HD-SDI transmission distance.

- Even if using a Non-PoC DVR, you can use a PS101P to configure One Cable Solution. PS101P can be used to provide power to PoC/CoC devices. Also, if you use a DR101P-RX (DoubleReach receiver), you can use DoubleReach transmission technology through Non-PoC DVR.

- When long distance video transmission is needed, you can use OPT-TX4-RS485P (4ch Fiber-Optic transmitter) which can supply power to PoC cameras. You can configure One Cable Solution between Fiber-Optic transmitter and cameras.
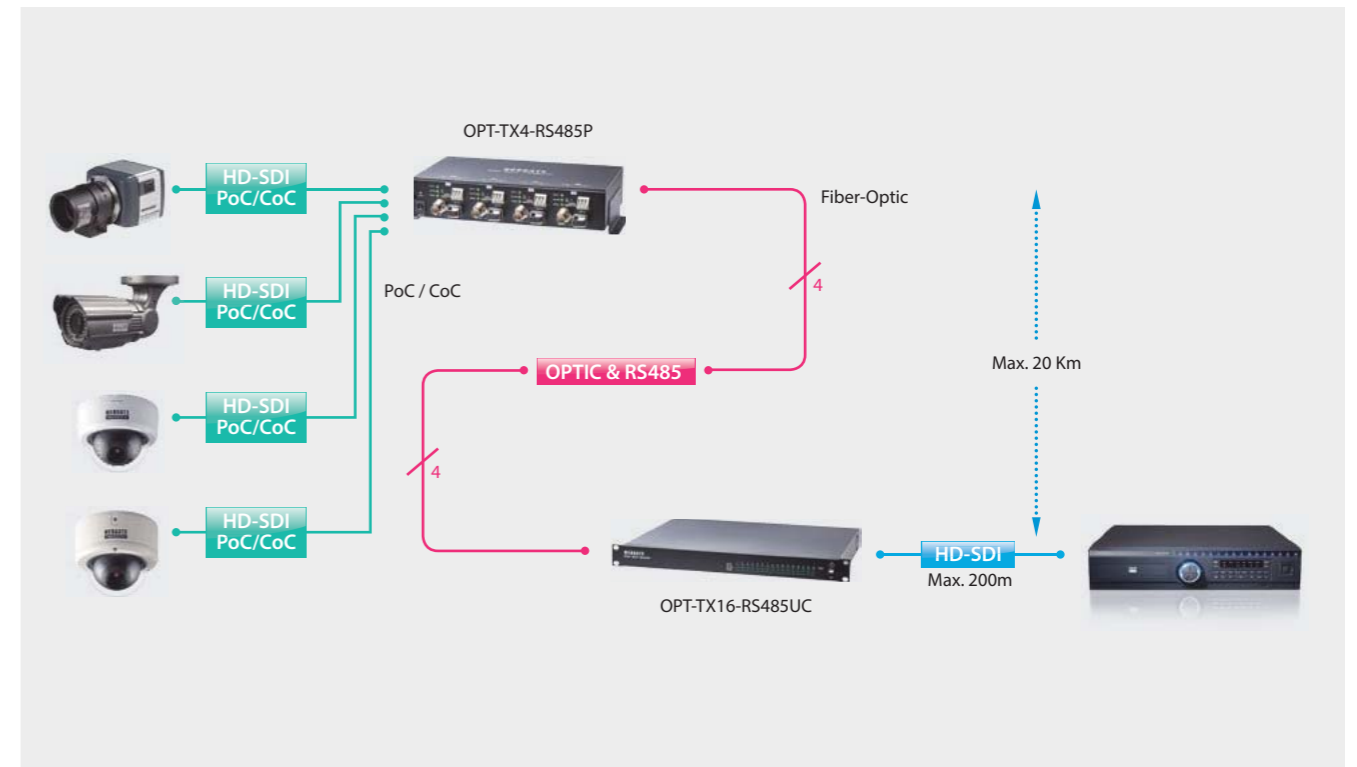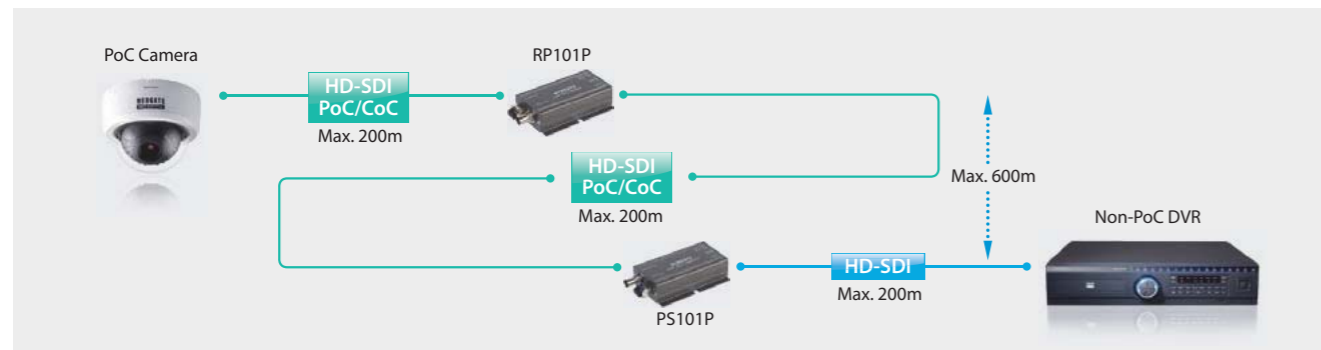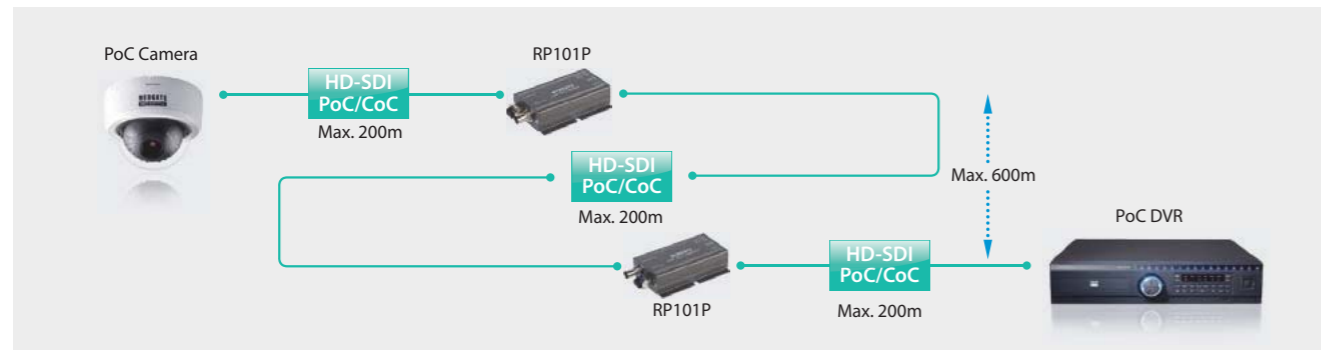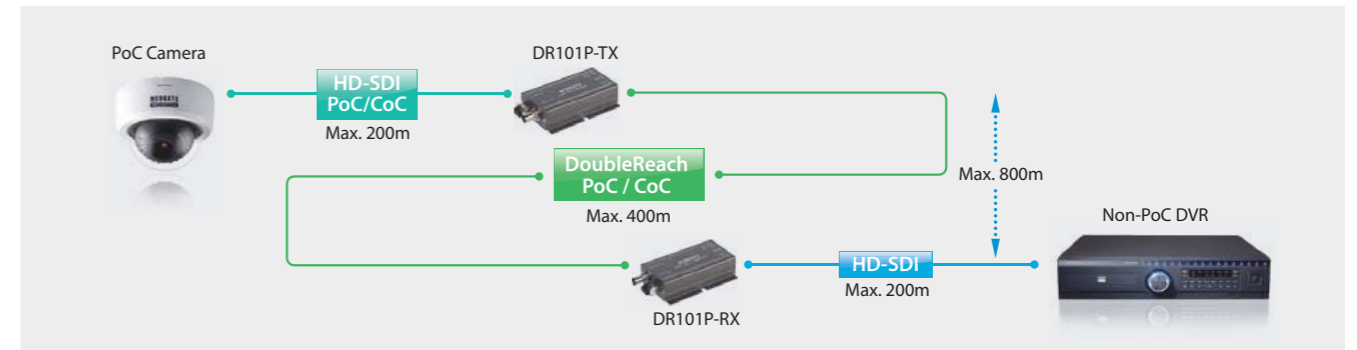
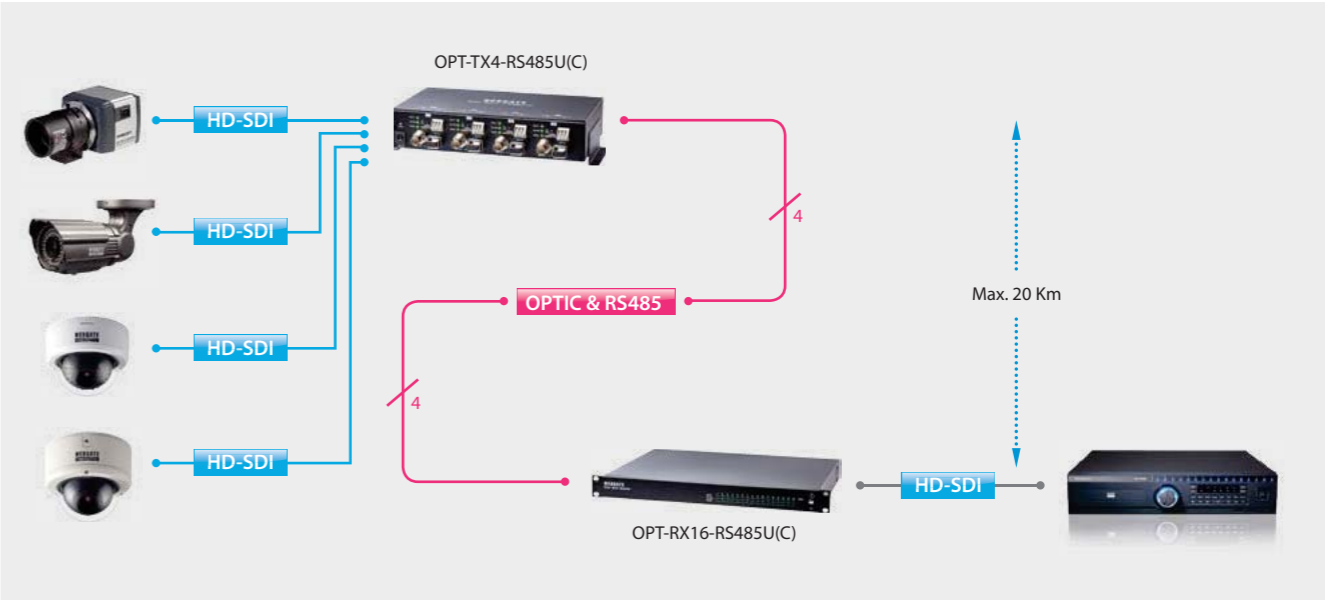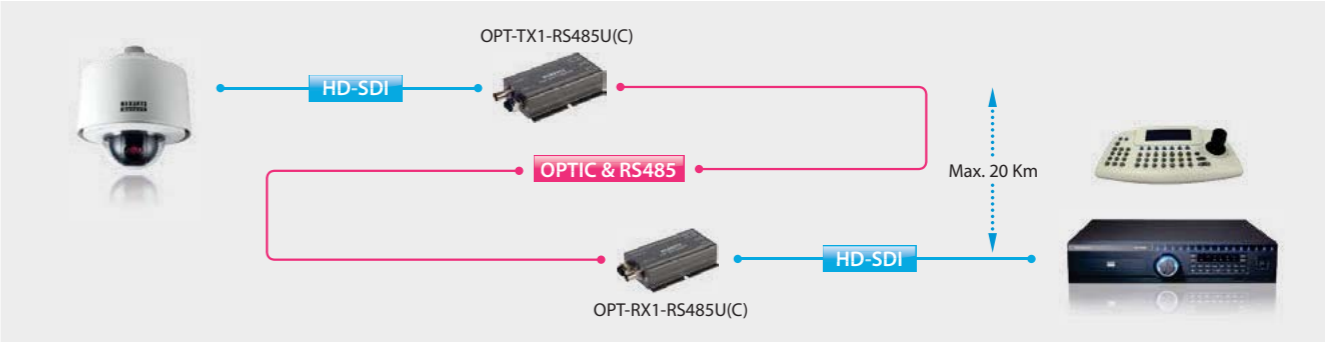# HD-CCTV Converter **Features**

Diverse HD-SDI Converters : RP101P, SDI2HDMI, HDMI2SDI, SD2HD, HD2SD

Building a HD-CCTV system requires various devices.
For this, WEBGATE is prepared diverse devices such as repeaters for extending transmission distance, converters between HD-SDI and HDMI and converters between HD and SD.
Each device insures the best video quality of HD-SDI signal to configure the most optimized system.
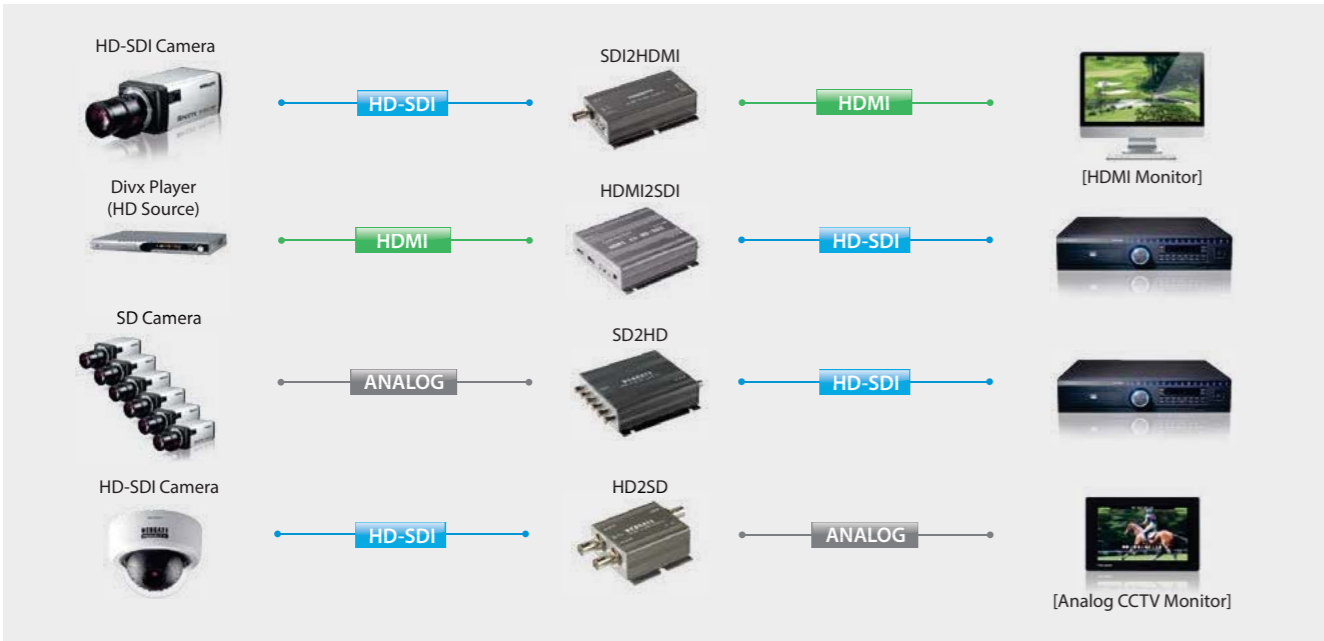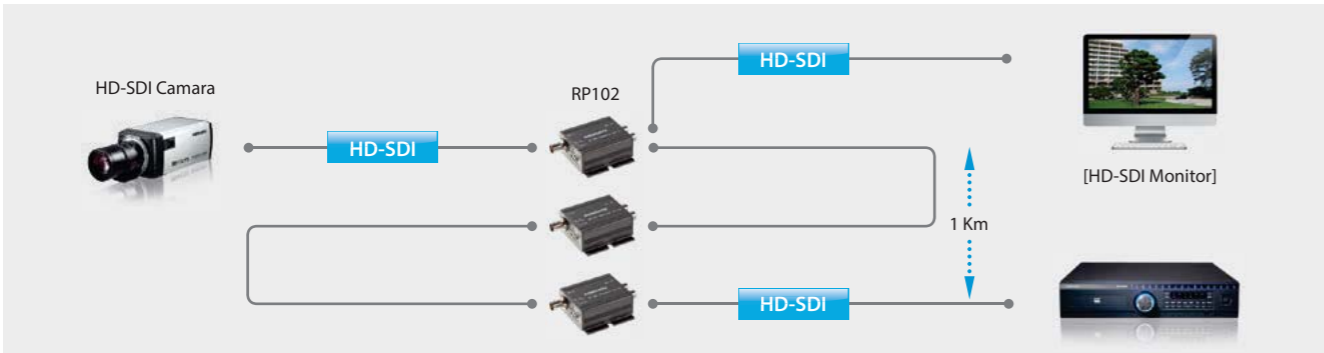
Fiber Optic Converters : OPT-TX/RX Series

Fiber-optic cable can be used for long distance HD-SDI transmission (up to 20Km).
If HD-SDI video signal is transmitted using fiber-optic cable, it provides noiseless clear video and can support RS485 for camera control at the same time.
1ch, 4ch Fiber-optic transmitters and 1ch, 16ch Fiber-optic receivers are applied to a number of large- scale installation sites and utilized.

Product Family : HD Converters

PoC & DoubleReach™ Converters

Model	Appearance	Description
RP101P		PoC Repeater
PS101P		PoC Power Supply
DR101P-TX		DoubleReach™ 1ch Transmitter
DR101P-RX		DoubleReach™ 1ch Receiver
OPT-TX4-RS485P		PoC Fiber-Optic 4ch Transmitter

* DoubleReach Transmitter & Receiver supports PoC/CoC together

Non-PoC Converters

Model	Appearance	Description
RP102		HD-SDI Repeater
SDI2HDMI		SDI to HDMI Converter
HDMI2SDI		HDMI to SDI Converter
SD2HD		SD to HD Converter
HD2SD		HD to SD Converter
OPT-TX1-RS485U(C)		Fiber-Optic 1ch Transmitter
OPT-TX4-RS485U(C)		Fiber-Optic 4ch Transmitter
OPT-RX1-RS485U(C)		Fiber-Optic 1ch Receiver
OPT-RX16-RS485U(C)		Fiber-Optic 16ch Receiver

* Fiber-Optic converter's suffix C models have HDcctv certification.

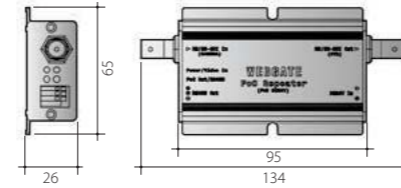# HD-CCTV Converters & etc

RP101P

HD-SDI Repeater for PoC/CoC/DoubleReach™

Key Features

- HD-SDI Repeater supporting PoC/CoC/DoubeReach™
  PoC(Power over Coax), CoC(Control over Coax)
- Power supply to PoC/DoubleReach devices via coaxial cable(PoC)
- Camera control data transmission via coaxial cable(CoC)
- Further transmission distance extension using multiple repeaters
  (Max. 2 devices between PoC Camera and PoC DVR)
- LED indicators for Power, Video input, PoC output, RS485 output
- Additional terminal blocks for power input and RS485 ouput

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	1CH(HD-SDI SMPTE 292M, DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
VIDEO OUTPUT	
Video output standard	1CH(HD-SDI SMPTE 292M, DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
PERFORMANCE	
Function	Equalizing, Reclocking, Cable driving
PoC	Power over Coax, Max.16W (DC24V)
CoC	Camera control data transmission, Max. 57600bps

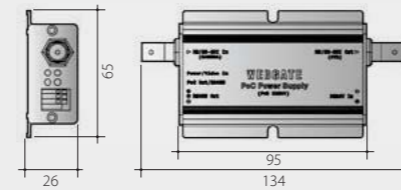| INTERFACE	
Indication LED	Power(Red), Video In(Green), PoC Out(Red), RS485 Out(Green)
RS485 out	Terminal block
Power input	Terminal block (Additional Power Input DC24V)
ENVIRONMENTAL & PHYSICAL	
Dimension	134(W) x 65(D) x 26(H) mm
Weight	Approx. 140g(0.3 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Power consumption	Max 2W
Approval	KC, FCC, CE, RoHS, HDcctv

PS101P

Power supply for PoC / CoC / DoubleReach™

Key Features

- Power supply for PoC/CoC/DoubleReach™ devices
  PoC(Power over Coax), CoC(Control over Coax)
- Power supply to PoC/DoubleReach devices via coaxial cable(PoC)
- Camera control data transmission via coaxial cable(CoC)
- LED indicators for Power, Video input, PoC output,
  RS485 input status
- Terminal blocks for power and RS485 input

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	1CH(HD-SDI SMPTE 292M, DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
VIDEO OUTPUT	
Video output standard	1CH(HD-SDI SMPTE 292M, DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
PERFORMANCE	
Function	Equalizing, Reclocking, Cable driving
PoC	Power over Coax, Max.16W (DC24V)
CoC	Camera control data transmission, Max. 57600bps

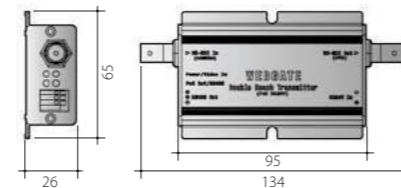| INTERFACE	
Indication LED	Power(Red), Video In(Green), PoC Out(Red), RS485 In(Green)
RS485 input	Terminal block
Power input	Terminal block (Additional Power Input DC24V)
ENVIRONMENTAL & PHYSICAL	
Dimension	134(W) x 65(D) x 26(H) mm
Weight	Approx. 140g(0.3 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Power consumption	Max 2W
Approval	KC, FCC, CE, RoHS, HDcctv

DR101P-TX

DoubleReach™ Transmitter supporting PoC / CoC function

Key Features

- DoubeReach™ Transmitter supporting PoC/CoC function
  PoC(Power over Coax), CoC(Control over Coax)
- Camera power supply via coaxial cable (PoC)
- Camera remote control via coaxial cable (CoC)
- HD-SDI video transmission up to 400m based on 5C-HFBT cable
- LED indicators for Power, Video input, PoC output, RS485 output
- Additional terminal blocks for power input and RS485 ouput

Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080p30/25)
VIDEO OUTPUT	
Video output standard	1CH(DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
PERFORMANCE	
Function	DoubleReach™ Converting
PoC	Power over Coax, Max.16W (DC24V)
CoC	Camera control data transmission, Max. 57600bps

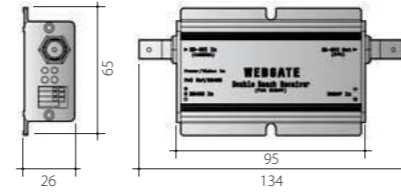| INTERFACE	
Indication LED	Power(Red), Video In(Green), PoC Out(Red), RS485 Out(Green)
RS485 out	Terminal block
Power input	Terminal block (Additional Power Input DC24V)
ENVIRONMENTAL & PHYSICAL	
Dimension	134(W) x 65(D) x 26(H) mm
Weight	Approx. 170g(0.3 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Power consumption	Max 3W
Approval	KC, FCC, CE, RoHS, HDcctv

DR101P-RX

DoubleReach™ Receiver supporting PoC/CoC function

Key Features

- DoubeReach™ Receiver supporting PoC/CoC function
  PoC(Power over Coax), CoC(Control over Coax)
- Power supply via coaxial cable (PoC)
- Camera remote control via coaxial cable (CoC)
- HD-SDI video transmission up to 400m based
  on 5C-HFBT cable
- LED indicators for Power, Video input, PoC output, RS485 input
- Terminal blocks for power input and RS485 input
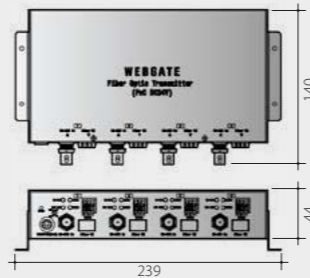
Dimension (unit:mm)

65 95 26 134

Specifications

VIDEO INPUT	
Video input standard	1CH(DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
VIDEO OUTPUT	
Video output standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080p30/25)
PERFORMANCE	
Function	DoubleReach™ Converting
PoC	Power over Coax, Max.16W (DC24V)
CoC	Camera control data transmission, Max. 57600bps

INTERFACE	
Indication LED	Power(Red), Video In(Green), PoC Out(Red), RS485 In(Green)
RS485 input	Terminal block
Power input	Terminal block (Additional Power Input DC24V)
ENVIRONMENTAL & PHYSICAL	
Dimension	134(W) x 65(D) x 26(H) mm
Weight	Approx. 170g(0.3 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Power consumption	Max 3W
Approval	KC, FCC, CE, RoHS, HDcctv

OPT-TX4-RS485P

Fiber-Optic Transmitter Supporting PoC/CoC

Key Features

- 4ch HD-SDI to Optic converter Supporting PoC/CoC
  PoC(Power over Coax), CoC(Control over Coax)
- Camera power supply via coaxial cable (PoC)
- Camera remote control via coaxial cable (CoC)
- BNC 4ch input, LC type 4ch Fiber-optic output
- Up to 20Km video/data(RS485) transmission
  via single-mode cable
- LED indicators for Power, HD-SDI Input, PoC Output,
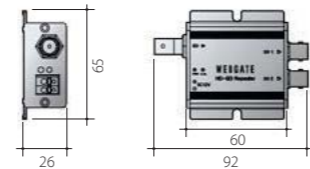 RS485 data and Optic status

Dimension (unit:mm)

140 44 239

Specifications

VIDEO INPUT	
Video input standard	1CH(HD-SDI SMPTE 292M, DoubleReach™)
Resolution	SMPTE 274M(1080p30/25)
VIDEO OUTPUT	
Video output standard	1310/1550 nm (Tx / Rx)
Resolution	Single mode / Max. 20Km
PERFORMANCE	
Function	Equalizing, Reclocking, Cable driving
PoC	Power over Coax, Max.16W (DC24V) /ch
CoC	Camera control data transmission, Max. 57600bps

INTERFACE	
Indication LED	Power(Red), HD-SDI(Green), PoC(Red), RS485(Green), Optic(Green)
RS485 out	Terminal block
Power input	4pin DC-JACK (DC24V)
ENVIRONMENTAL & PHYSICAL	
Dimension	239(W) x 140(D) x 44(H) mm
Weight	Approx. 1Kg (2.20 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Power consumption	Max 9W
Approval	KC, FCC, CE, RoHS, HDcctv

RP102

Key Features

- The World's first HDcctv Certified repeater
- HD-SDI repeater & distributer
- BNC 1ch input / 2ch outputs
- Auto-detection of HD-SDI video format
- Transmission distance extendable using multiple repeaters
- HD-SDI transmission distance :
  Approx. 200m(650ft.) via RG6 or 150m(490ft.) via RG59
- Power, Link LED indicator

Dimension (unit:mm)

65 26 60 92

Specifications

VIDEO INPUT	
Video input standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i60/50, 1080p30/25)
	SMPTE 296M(720p25/30/50/60)
VIDEO OUTPUT	
Video output standard	2CH (HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i60/50, 1080p30/25)
	SMPTE 296M(720p25/30/50/60)
PERFORMANCE	
Function	Include equalizing, Reclocking, Driver

| INTERFACE	
Indication LED	Power LED(Red), Link LED(Green)
ENVIRONMENTAL & PHYSICAL	
Dimension	92(W) x 65(D) x 26(H) mm
Weight	Approx. 120g(0.2 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Input Voltage	DC12V
Power consumption	Max 3W
Approval	KC, FCC, CE, RoHS, HDcctv

SDI2HDMI

Key Features

- The world's first HDcctv certified converter
- HD-SDI to HDMI converter
- BNC input / HDMI output
- Supports HD-SDI 1080p & 720p video format
- Supports HDMI embedded audio
- OSD for video status display
- Compatible with 50/60Hz system
- Power, Link LED indicator
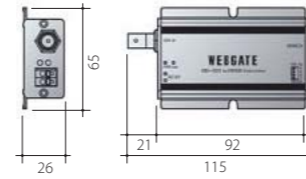
Dimension (unit:mm)

65
21   92
26   115

Specifications

VIDEO INPUT	
Video input standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i60/50, 1080p30/25)
	SMPTE 296M(720p25/30/50/60)

VIDEO OUTPUT	
Video output standard	1CH(HDMI)
Resolution	1080p60RB, 1080p60, 1080i60, 720p60

AUDIO	
Audio output	2CH(Left, Right)

INTERFACE	
Indication LED	Power LED(Red), Link LED(Green)
Mode selection switch	4 Dip switches for operation mode setting

| ENVIRONMENTAL & PHYSICAL	
Dimension	115(W) x 65(D) x 26(H) mm
Weight	Approx. 140g(0.3 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Input Voltage	DC12V
Power consumption	Max 4W
Approval	KC, FCC, CE, RoHS, HDcctv

HDMI2SDI

Key Features

- HDMI to HD-SDI converter
- Selectable one HDMI among two HDMI input
- Auto detection on input image
- Mode selection switch for video output format selection
- HD-SDI embedded audio & RCA audio output
- Power LED indicator

Dimension (unit:mm)

122
33
112
126
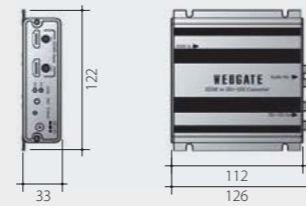
Specifications

VIDEO INPUT	
Video input standard	2CH (HDMI, selectable)
Resolution	SMPTE 274M(1080i60/50, 1080p30/25)
	SMPTE 296M(720p25/30/50/60)

VIDEO OUTPUT	
Video output standard	2CH (HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i60/50, 1080p30/25)
	SMPTE 296M(720p25/30/50/60)

AUDIO	
Audio output	2CH (Left, Right), RCA connector

PERFORMANCE	
Function	Include equalizing, Reclocking, Driver

INTERFACE	
Indication LED	Input channel indication LED (Green, Red), Power LED (Red)
Mode selection switch	4 Dip switches for operation mode setting

ENVIRONMENTAL & PHYSICAL	
Dimension	126(W) x 122(D) x 33(H) mm
Weight	Approx. 310g(0.7 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Input Voltage	DV12V
Power consumption	Max 4W
Approval	KC, FCC, CE, RoHS

SD2HD

Key Features

- CVBS to HD-SDI converter
- Max 6ch CVBS signal input
- NTSC/PAL switch selectable
- 1/4/6 split-screen output selectable
- 16:9 or 4:3 video ratio selectable
- Power LED indicator

Dimension (unit:mm)

121
33   143
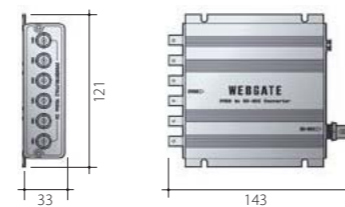
Specifications

VIDEO INPUT	
Video input standard	6CH (NTSC/PAL CVBS)

VIDEO OUTPUT	
Video output standard	1CH (HD-SDI SMPTE 292M)
Resolution	SMPTE274M(1080p30/25)

INTERFACE	
Indication LED	Include equalizing, Reclocking, Driver
Mode select switch	SW1 : NTSC/PAL select
	SW2 : Split-Screen select
	SW3 : Split-Screen select
	SW4 : 16:9/4:3 Mode select

| ENVIRONMENTAL & PHYSICAL	
Dimension	143(W) x 121(D) x 33(H) mm
Weight	Approx. 320g(0.7 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Input Voltage	DC12V
Power consumption	Max 5W
Approval	KC, FCC, CE, RoHS

HD2SD

Key Features

- The world's first HDcctv certified converter
- HD-SDI to CVBS converter
  (HD-SDI Loop-through output)
- BNC 1ch Input / 2ch outputs
- HD-SDI 1080p & 720p Video Format
- NTSC/PAL Auto-Output by detecting input video
- Standby mode for power saving
- 50/60Hz system compatible
- Power, Link LED indicator
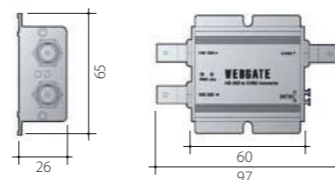
Dimension (unit:mm)

Specifications

VIDEO INPUT	
Video input standard	1CH (HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i60/50, 1080p30/25)
	SMPTE 296M(720p25/30/50/60)

VIDEO OUTPUT	
Video output standard	1CH CVBS(NTSC/PAL-auto change according to 25/30Hz)
	1CH (HD-SDI SMPTE 292M)

INTERFACE	
Indication LED	Power LED : Red, Link LED : Green

ENVIRONMENTAL & PHYSICAL	
Dimension	97(W) x 65(D) x 26(H) mm
Weight	Approx. 120g
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Input Voltage	DC 12V
Power consumption	Max 2.2W
Approval	KC, FCC, CE, RoHS, HDcctv

OPT-TX1-RS485U(C)

Key Features

- 1ch HD-SDI to Optic converter
- BNC 1ch input, LC type 1ch Fiber-optic output
- Supports SMPTE-292M(HD-SDI) video standard
- Supports 1080p25/30, 1080i50/60,
  720p25/30/50/60 resolution
- Up to 20Km video/data(RS485) transmission
  via single-mode cable
- Power, Video, Data, Optic status LED indicators
- 'UC' model has HDcctv certificate

Dimension (unit:mm)

Specifications

HD-SDI PORT	
Video standard	SMPTE292M
Resolution	SMPTE 274M(1080p30/25)
	SMPTE 296M(720p25/30/50/60)

OPTICAL PORT	
Fiber Type	Single-mode
Connector	LC
Distance	20Km(12.4mi) at 1.5Gbps

ENVIRONMENTAL & PHYSICAL	
Dimension	117W) x 65(D) x 26(H) mm
Weight	Approx. 150g(0.33 lbs)
Operating temperature	0℃ to +50℃ / 20%RH to 80%RH
Input Voltage	DC 12V
Power consumption	Max. 2.0W
Approval	KC, FCC, CE, RoHS, HDcctv

OPT-RX1-RS485U(C)

Key Features

- 1ch Optic to HD-SDI converter
- LC type 1ch Fiber-optic input, BNC 1ch output
- Supports SMPTE-292M(HD-SDI) video standard
- Supports 1080p25/30, 1080i50/60,
  720p25/30/50/60 resolution
- Up to 20Km video/data(RS485) transmission
  via single-mode cable
- Power, Video, Data, Optic status LED indicators
- 'UC' model has HDcctv certificate

Dimension (unit:mm)

Specifications

HD-SDI PORT	
Video standard	SMPTE292M
Resolution	SMPTE 274M(1080p30/25)
	SMPTE 296M(720p25/30/50/60)

OPTICAL PORT	
Fiber Type	Single-mode
Connector	LC
Distance	20Km(12.4mi) at 1.5Gbps

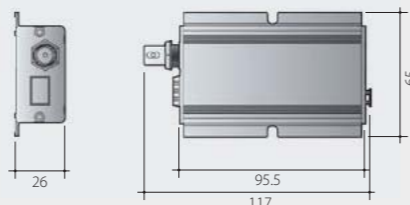| ENVIRONMENTAL & PHYSICAL	
Dimension	117W) x 65(D) x 26(H) mm
Weight	Approx. 160g(0.35 lbs)
Operating temperature	0℃ ~ 50℃ / 5% ~ 95%RH
Input Voltage	DC12V
Power consumption	Max. 2.0W
Approval	KC, FCC, CE, RoHS, HDcctv

OPT-TX4-RS485U(C)

Key Features

- 4ch HD-SDI to Optic converter
- BNC 4ch input, LC type 4ch Fiber-optic output
- Supports SMPTE-292M(HD-SDI) video standard
- Supports 1080p25/30, 1080i50/60, 720p25/30/50/60 resolution
- Up to 20Km video/data(RS485) transmission via single-mode cable
- Power, Video, Data, Optic status LED indicators
- 'UC' model has HDcctv certificate

Dimension (unit:mm)

120
44
239

Specifications

HD-SDI PORT

Video standard	SMPTE292M
Resolution	SMPTE 274M(1080p30/25)
	SMPTE 296M(720p25/30/50/60)

OPTICAL PORT

Fiber Type	Single-mode
Connector	LC
Distance	20Km(12.4mi) at 1.5Gbps

ENVIRONMENTAL & PHYSICAL

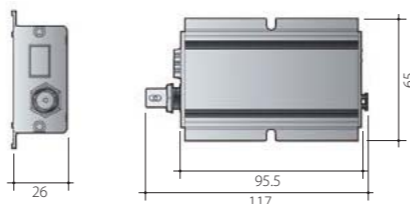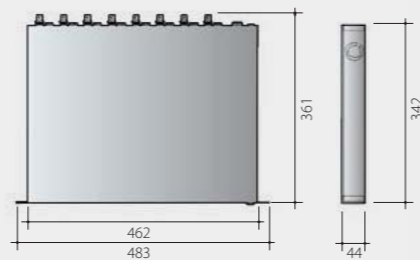|	
Dimension	239(W) x 120(D) x 44(H) mm
Weight	Approx. 1Kg(2.2lbs)
Operating temperature	0℃ ~ 50℃ / 5% ~ 95%RH
Input Voltage	DC 12V
Power consumption	Max. 6.0W
Approval	KC, FCC, CE, RoHS, HDcctv

OPT-RX16-RS485U(C)

Key Features

- 16ch Optic to HD-SDI converter
- LC type 16ch Fiber-optic input, BNC 16ch output
- Supports SMPTE-292M(HD-SDI) video standard
- Supports 1080p25/30, 1080i50/60, 720p25/30/50/60 resolution
- Up to 20Km video/data(RS485) transmission via single-mode cable
- Power, Video, Data, Optic status LED indicators
- 19" Rack-mount type
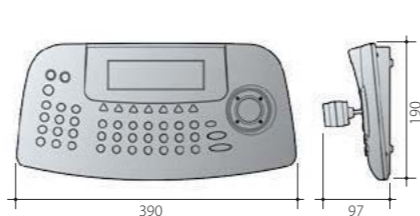- 'UC' model has HDcctv certificate

Dimension (unit:mm)

361
342
462
483
44

Specifications

HD-SDI PORT

Video standard	SMPTE292M
Resolution	SMPTE 274M(1080p30/25)
	SMPTE 296M(720p25/30/50/60)

OPTICAL PORT

Fiber Type	Single-mode
Connector	LC
Distance	20Km(12.4mi) at 1.5Gbps

ENVIRONMENTAL & PHYSICAL

Dimension	483(W) x 342(D) x 44(H) mm
Weight	Approx. 4.5Kg(9.92lbs)
Operating temperature	0℃ ~ 50℃ / 5% ~ 95%RH
Input Voltage	DC 12V
Power consumption	Max. 30W
Approval	KC, FCC, CE, RoHS, HDcctv

WKC-100

Key Features

- Supports 255 DVRs, 255 Speed dome camera
- PTZ dome camera control via DVR or CMS
- Unit and channel control which are connected to Control Center
- Supports Preset, Tour, Pattern, Group and other major functions
- Supports RS485/422/232
- Supports various protocols (Pelco-D, Pelco-P and so on)

Dimension (unit:mm)

190
390
97

Specifications

DEVICE CONNECTION

Support Devices	HD/MH/EH/LH series DVR
	Pelco-D/Pelco-P protocol supported camera
	Control Center Software

OPTICAL PORT

Method	RS485/RS422/RS232
Cascade	Up to 255 keyboards with Master/Slave
Protocol	EZ,HWL,S2,S2e,Pelco-D, Pelco-P
Password	Master,User Login

INTERFACE

Joy Stick	3 Axis Joy Stick
LCD	30 x 8 Character LCD

ENVIRONMENTAL & PHYSICAL

Dimension	390(W) x 190(D) x 97(H) mm
Weight	Approx. 1.2kg
Operating temperature	0℃ to +50℃ / 0%RH to 90%RH
Input Voltage	DC12V / 0.5A
Power Consumption	Max 6W

HD IP & NVR

Versatile WESP
(Webgate Embedded Standard Protocol) **SDK**

Provides **Max.8 Streams**

Dual Video Compression

Reliable **Standalone NVR**

Supports **Mirroring** and **IPFR**
(Intelligent Power Failure Recovery)

B101M Network Server Solution

Key Features

- 1ch MPEG-4 Video server
- Supports Multi Streaming (Max.8) under D1/60fps performance
- Supports Dual-Codec (MPEG-4 & JPEG)
- Supports D1 / Half D1 / CIF / QCIF Resolutions
- 2 Sensor Inputs (Dry Contact) / 2 Digital Outputs (TTL level)
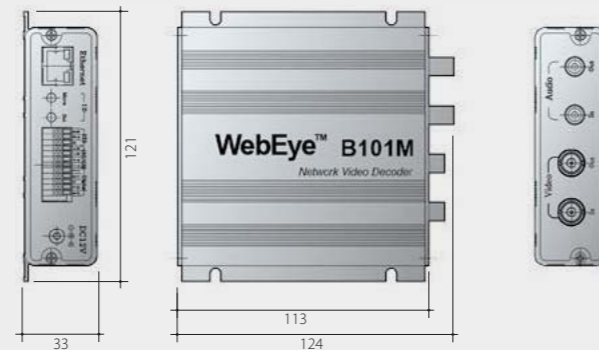- Live monitoring and Server setup via IE Browser

Front

Back

Dimension (unit:mm)

Specifications

IMAGE COMPRESSION	
MPEG-4 Resolution	Up to 720x480, 30 frames per second Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
Performance	Up to 8 streams simultaneously MPEG-4 D1(4CIF) 60fps
NETWORK	
Program	Control Center, Web Browser
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP, DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	10 users
Security	Encrypted password, IP filtering
INPUT / OUTPUT	
Video	1 Input : CVBS(BNC) / 1 Output : CVBS(BNC)
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
Sensor Input	Software-controlled 2 sensor inputs (Dry contact)
Digital Output Schedule	Daily : Day / Night / Four-segment time frame
	Weekly : Weekdays / Weekends
	Conditions : MD, Sensor
Digital Output	Software-controlled 2 digital outputs (TTL level)
PTZ CONTROL	
Serial Port	RS232, RS422/485
Control Method (Remote)	PTZ control at the screen (control center, web)
Preset Mode	64 preset positions per channel
ADDITIONAL FUNCTION	
Password Protection	Yes
Video Motion Detection	Yes
FTP/E-mail Sending	Yes
OS	
Operation System	Embedded Linux
ENVIRONMENTS	
Operation Temperature	5ºC~40ºC
Storage Temperature	-10ºC~55ºC
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation
ELECTRICITY	
DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V 5A
Power Consumption	Max. 5W (DC12V)
MECHANICAL	
Dimension (mm)	121.0(W) x 124.0(D) x 33.0(H)
Weight	Approx. 300g
Approval	KC, FCC, CE, RoHS

HD **IP/NVR**

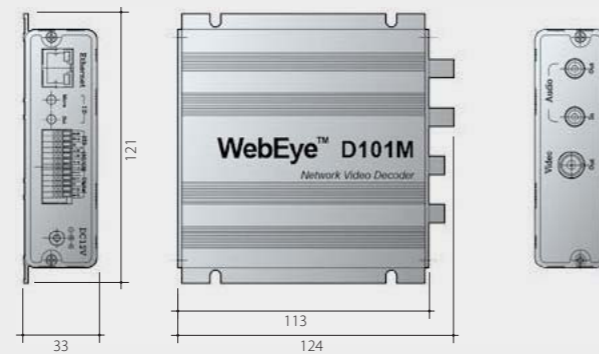Premium to your security **WEBGATE**

D101M Network Server Solution

Key Features

- 1ch MPEG-4 video decoder
- Supports various resolution D1(4CIF), HALF D1(2CIF), CIF, QCIF
- MPEG-4 & JPEG decoding
- Sequential monitoring up to 16 video servers
- OSD menu control of video server at non-PC environment
- Supports bi-directional audio (1ch RCA input & output)

Front

Back

Dimension (unit:mm)

Specifications

IMAGE COMPRESSION

MPEG-4 Resolution	Up to 720x480, 30 frames per second Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Support D1(4CIF)/HALF(2CIF)/CIF/QCIF

NETWORK

Program	Control Center
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP, DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Security	Encrypted password, IP filtering

INPUT / OUTPUT

Video	1 ch output for analog monitor
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp

ADDITIONAL FUNCTION

Key Input for OSD control	Yes
Sequence Monitoring	Yes
Keyboard for remote PTZ control	Yes
Caption on Screen	Yes

OS

Operation System	Embedded Linux

ENVIRONMENTS

Operation Temperature	5ºC~40ºC
Storage Temperature	-10ºC~55ºC
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation

ELECTRICITY

DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V, 5A
Power Consumption	Max. 5W (DC12V)

MECHANICAL

|	
Dimension (mm)	121.0(W) x 124.0(D) x 33.0(H)
Weight	Approx. 300g
Approval	KC, FCC, CE, RoHS

HDC730C HD Box Camera

Key Features

- 1ch MPEG-4 High-Definition network camera
- 1/3", 1.3M CMOS Sensor
- 30fps@720p or 22.5fps@1280x960 performance
- Supports 1280x720, (x1/4), (x1/16) resolutions
- Superior sensitivity, 0.001lux @B&W, 0.5lux @Color
- PoE (Power over Ethernet) Option
- Bi-Directional Audio (1ch Input/Output)
- 2 sensor Inputs (Dry Contact) / 2 digital Outputs (TTL level)
- RS232 and RS422/485 port for PTZ Control
- Supports static or dynamic IP for xDSL and cable-modem User
- Live monitoring and camera setup via IE Browser
- Supports WESP (Webgate Embedded Standard Protocol)
- SDK is available for customization

Dimension (unit:mm)
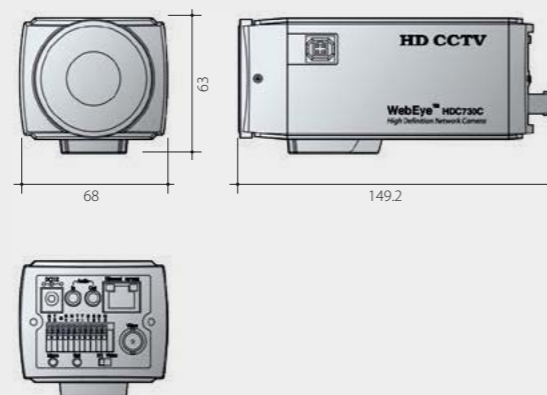
Specifications

LENS

Lens Mount	CS / C(Ring Adaptor)
Lens Type	Manual Iris, DC Iris, Video Iris

CAMERA

Image Sensor	Progressive Scan, 1/3", CMOS image sensor
Resolution	1280 x 720(720p)
Effective Pixels	1.25M-Effective Pixels
Min. Lux Level	0.001 Lux @ 50IRE, F1.4, 3100K, 0.5Lux @ 50IRE, F1.4, 3100K
Sensitivity(F5.6)	3200K, 706 cd/m2, Y signal, 1/30 s accumulation
White Balance	ATW/AWC/PUSH
AGC	Yes
Back-light compensation	Yes
DSS	Yes

IMAGE COMPRESSION

MPEG-4 Resolution	Up to 1280x720, 30 frames per second
	Supports 720p/D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Supports 720p/D1(4CIF)/HALF(2CIF)/CIF/QCIF
Performance	Up to 2 streams simultaneously
	MPEG-4 720p 30fps performance

NETWORK

Program	Control Center, Web Browser
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP,
	DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	5 users
Security	Encrypted password, IP filtering

INPUT / OUTPUT

Video	1 ch output
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
Sensor input	Software-controlled 2 sensor inputs (Dry contact)
Digital Output Schedule	Daily : Day / Night / Four-segment time frame
	Weekly : Weekdays / Weekends
	Conditions : MD, Sensor
Digital Output	Software-controlled 2 digital outputs (TTL level)

PTZ CONTROL

Serial Port	RS232, RS422/485
Control Method (Remote)	PTZ control at the screen (control center, web)
Preset Mode	64 preset positions per channel

ADDITIONAL FUNCTION

Password Protection	Yes
Video Motion Detection	Yes
FTP/E-mail Sending	Yes

OS

Operation System	Embedded Linux

ENVIRONMENTS

Operation Temperature	5ºC~40ºC
Storage Temperature	-10ºC~55ºC
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation

ELECTRICITY

DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V 5A
Power Consumption	Max. 7W (DC12V), 8W(PoE)

MECHANICAL

|	
Dimension (mm)	68(W) x 149.2(D) x 63(H)
Weight	Approx. 460g
Approval	KC, FCC, CE, RoHS

SPD360M   IP Speed Dome Camera

Key Features

- 1ch MPEG-4 Network speed dome camera
- Supports multi-streaming(Max.8) with D1/60fps performance
- Supports D1/ Half D1/ CIF /QCIF resolution
- Day/Night function of IR Cut-filter removing method
- 360° endless panning
- 36x Optical zoom (Max. 576x including 12x digital zoom)
- MPEG-4 & JPEG Dual Codec
- Noise Reduction / Optional PoE
- Bi-directional audio
- 4 Sensor inputs (Dry contact) / 2 Digital outputs (TTL Level)
- Supports RS232, RS485 and CVBS output for Local operation
- Supports Fixed/Dynamic IP address for xDSL, Cable modem users
- Live monitoring and configuration through web browser
- WESP (WEBGATE Embedded Standard Protocol) SDK compatible

Dimension (unit:mm)

126

191

67
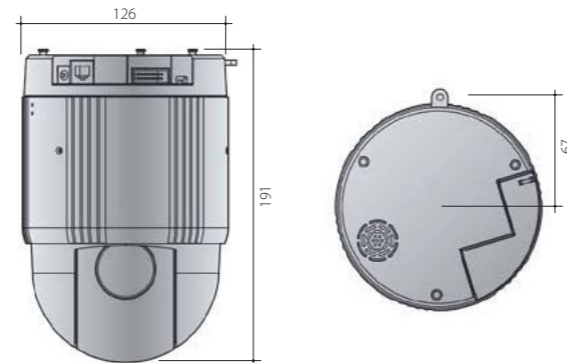
Specifications

LENS

| Lens Optical | 36x (f=3.4 ~ 122.4mm), F1.6(Wide) ~ F4.5(Tele) |
| | Optical zoom 36x & Digital zoom 16x (Total 576x) |

COD CAMERA

COD Format	Progressive Scan, 1/3", CMOS image sensor
Video Type	NTSC
Max. Resolution	720 x 480
Image Transfer Rate	MAX. 30fps (NTSC) / 25fps (PAL)
Minimum illumination	0.5 lx (50 IRE)
	0.05 lx (50 IRE, IR Filter OFF)
	0.001 lx (50 IRE, IR Filter ON, 512 Fields)
	0.0001 lx (50 IRE, IR Filter OFF, 512 Fields)
AGC	High / Medium / Low
Auto white balance	ATW / AWC / Indoor / Outdoor / Manual
Back-light compensation	BLC / BMB / WDR

IMAGE COMPRESSION

MPEG-4 Resolution	Up to 1280x720 @ 30 frames per second
	Support D1(4CIF)/ HALF(2CIF)/ CIF/ QCIF
JPEG Resolution	Support D1(4CIF)/ HALF(2CIF)/ CIF/ QCIF
Performance	MPEG-4 D1(4CIF) 60fps performance
	Up to 8 video streams simultaneously

NETWORK

Program	Control Center, Web Browser
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP,
	DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	10 users
Security	Encrypted password, IP filtering

INPUT / OUTPUT

Video output	VBS, 1Vp-p / 75Ω, Composite signal
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
Sensor input	Software-controlled 4 sensor inputs (Dry contact)
Digital output	Software-controlled 2 digital outputs (TTL level)

PTZ CONTROL

Serial Port	RS232, RS485
Control Method (Remote)	PTZ control at the screen (control center, web)
Preset Mode	64 preset positions per channel

ADDITIONAL FUNCTION

Password Protection	Yes
Video Motion Detection	Yes
FTP/E-mail Sending	Yes

OS

| Operation System | Embedded Linux |

ENVIRONMENTS

Operation Temperature	5°C~40°C
Storage Temperature	-10°C~55°C
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation

ELECTRICITY

| DC Adaptor (optional) | Input : AC 110~220V / Output : DC 12V, 5A |
| Power Consumption | Max. 7W (DC12V) |

MECHANICAL

Dimension (mm)	126.0(Φ) x 191.0(mm)
Weight	Approx. 1.2kg
Approval	KC, FCC, CE, RoHS

HD IP/NVR
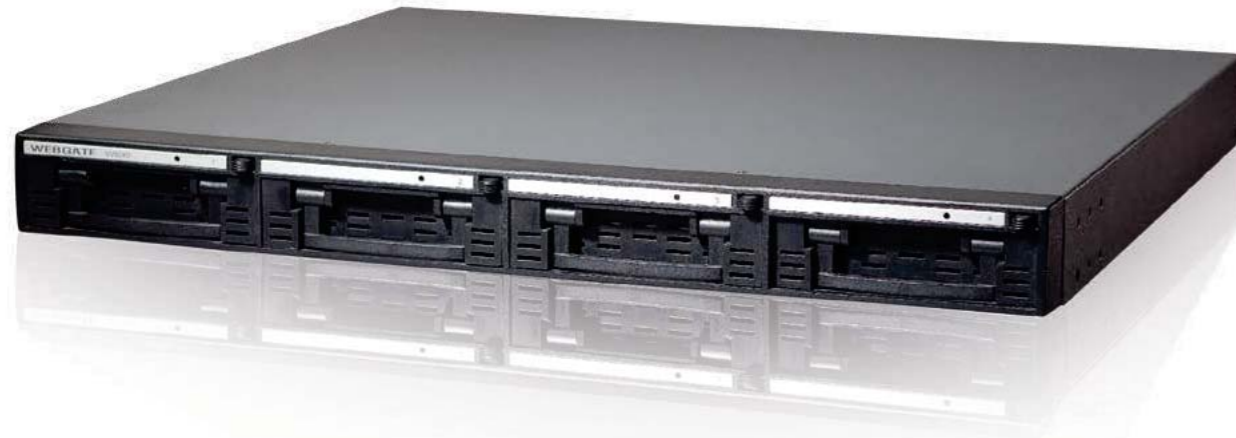
NVS04S HD Network Video Recorder

Key Features

- Network Video Recorder (Standalone type NVR)
- Up to 16 HD video streams can be recorded
- 4 Hot-Swap, SATA type HDD bays
- Remote playback and configuration via CMS (Control Center)
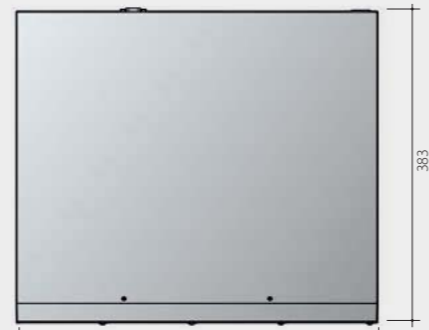- IPFR Support (Intelligent Power Failure Recovery)

Front

Back

Dimension (unit:mm)

383
445
44

Specifications

SYSTEM

OS	Embedded linux
Network	1 Gigabit Ethernet port for network
	1 Gigabit Ethernet for future use

VIDEO

Recording channels	Up to 16 HD video streams
Supported camera	B101M, E30M, SPD260M, SPD350M, SPD360M, VD101M, HDC730
	* Axis, Arecont, Truen, Acti, STW, Brickcom
	* Please contact local sales for the details
Codec	MPEG-4, H.264
Recording Rate	up to 480fps

STORAGE

Capacity	8TB
Performance	Up to 80Mbps
Storage device	4 SATA interface with hot-swap function
Intelligent file system	Data-loss protection against power failure

EVENT

Capacity	8TB
Storage device	4 SATA interface with hot-swap function
Intelligent file system	Data-loss protection against power failure

ENVIRONMENTS

Operation Temperature	+5ºC~+40ºC (+41F ~ +113F)
Storage Temperature	-25ºC~+70ºC (-13F ~ +158F)
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation

ELECTRICITY

Power	AC 100~240V, 50/60Hz
Power Consumption with 4HDD	TBD

ENVIRONMENTAL & PHYSICAL

Dimension (mm)	445(W) x 383(D) x 44(H)
Weight	Approx. 5.5 Kg (with one HDD)

H.264
DVR

H.264 and JPEG **dual codec**
Adjustable **resolution**
PTZ **control**
Built-in Mirroring support

WEBGATE

MH3200M

1/17 2/18 3/19 4/20 5/21 6/22 7/23 8/24 9/25 10/26 11/27 12/28 13/29 14/30 15/31

DVD
RECORDER

REC
LOCK

REC EVENT COPY NET HDD.INT HDD.EXT

ESC
MENU

FUNC SEAR COPY RELAY MON PTZ SEQ MULTI

H.264 Standalone **DVR**

MH3200M
H.264 Standalone Digital Video Recorder

Key Features

- 32ch Standalone DVR
- Full-frame monitoring/recording(960/800fps@2CIF) for all channels
- Adjustable recording quality and framerate per each channel
- 4 Individual monitor output via built-in 4 BNC and 2 DVI port
  (Each monitor can support playback / split-screen / menu display)
- Supports Dual Codec(H.264, JPEG) / Multi stream
- Supports IPFR (Intelligent Power Failure Recovery) file system
- 4 Internal SATA type HDDs
- Supports external storage via gigabit ethernet (NVS04R)
- Supports external storage via eSATA port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)
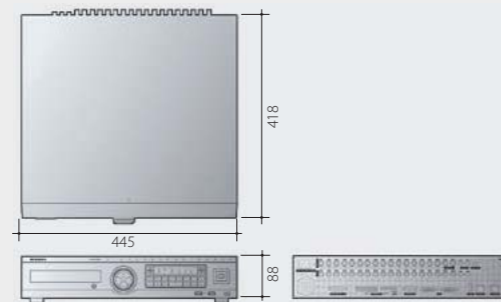- Provides full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT

Video input analog ch	32 BNC connectors (NTSC/PAL, auto detect)
Connectors	32ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	4 BNC (Each monitor supports16 split-screen), 2 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop Output	Not supported

RECORDING

Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	960/800fps (NTSC/PAL) at Half D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO

Input/output	16ch input / 1ch output

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK

Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy,Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for storage
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA, Max 32TB with cascaded NVS04R
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay

CONTROLLER

Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	445(W) x 418(D) x 88(H) mm
Weight	Approx. 9.5 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Standalone **DVR**

MH1600H H.264 Standalone Digital Video Recorder

Key Features

- 16ch Standalone DVR
- Full-frame monitoring/recording(480/400fps@4CIF) for all channels
- Adjustable recording quality and framerate per each channel
- 4 Individual monitor output via built-in 4 BNC and 2 DVI port
  (Each monitor can support playback /split screen / menu display)
- Supports Dual Codec(H.264, JPEG) / Multi stream
- Supports IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA type HDDs
- Supports external Storage via gigabit ethernet (NVS04R)
- Supports external storage via eSATA port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)
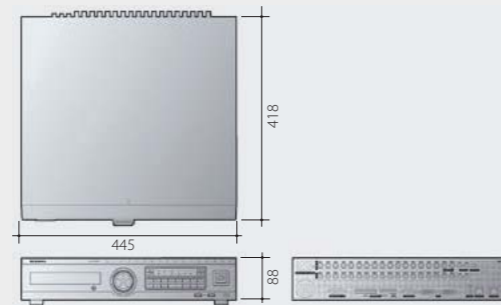- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT

Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	4 BNC (Each monitor supports16 split-screen), 2 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop Output	16 with auto-termination

RECORDING

Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at D1(4CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO

Input/output	16ch input / 1ch output

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK

Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for storage
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA, Max 32TB with cascaded NVS04R
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay

CONTROLLER

Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	445(W) x 418(D) x 88(H) mm
Weight	Approx. 9.5 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Standalone **DVR**

MH1600M   H.264 Standalone Digital Video Recorder

Key Features

- 16ch Standalone DVR
- Full-frame monitoring/recording(480/400fps@2CIF) for all channels
- Adjustable recording quality and framerate per each channel
- 4 Individual monitor output via built-in 4 BNC and 2 DVI port
  (Each monitor can support playback / split-screen/menu display)
- Supports Dual Codec(H.264, JPEG) / Multi stream
- Supports IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA type HDDs
- Supports external storage via gigabit ethernet (NVS04R)
- Supports external storage via eSATA port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)
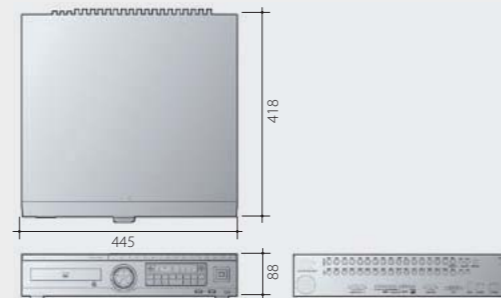- Provides Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT

Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	2 BNC (Each monitor supports 16 split-screen), 1 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop Output	16 with auto-termination

RECORDING

Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at Half D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO

Input/output	16ch input / 1ch output

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK

Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for storage
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA, Max 32TB with cascaded NVS04R
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay

CONTROLLER

Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	445(W) x 418(D) x 88(H) mm
Weight	Approx. 9.5 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Standalone **DVR**

EH1600L

H.264 Standalone Digital Video Recorder

Key Features

- 16ch Standalone DVR
- Full-frame monitoring/recording(480/400fps@CIF) for all channels
- Adjustable recording quality and framerate per each channel
- Main and Spot monitor output via built-in 2 BNC and 1 DVI port
- Supports Dual Codec(H.264, JPEG) / Multi stream
- 2 Internal SATA type HDDs
- Supports external storage via eSATA port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)
- Provide Full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT
Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop Output	16 with auto-termination

RECORDING
Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at Half D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK
Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO
Input/output	4ch input / 1ch output

PTZ
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP
Storage devices	2 internal SATA HDDs, 1 external eSATA I/F
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	2 relay

CONTROLLER
Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL
Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Standalone **DVR**

EH800M

H.264 Standalone Digital Video Recorder

Key Features

- 8ch Standalone DVR
- Full-frame monitoring/recording(240/200fps@2CIF) for all channels
- Adjustable recording quality and framerate per each channel
- Main and Spot monitor output via built-in 2 BNC and 1 DVI Port
- Supports Dual Codec(H.264, JPEG) / Multi stream
- 2 Internal SATA type HDDs
- Supports external storage via eSATA port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)
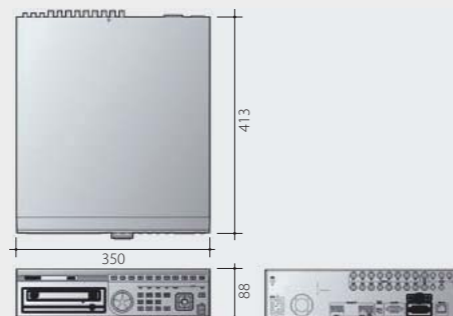- Provides full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT

Video input analog ch	8 BNC connectors (NTSC/PAL, auto detect)
Connectors	8ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 DVI 1, 4, 9 mode User defined sequence / alarm pop-up
Loop Output	8 with auto-termination

RECORDING

Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	240/200fps (NTSC/PAL) at HALF D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO

Input/output	4ch input / 1ch output

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK

Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	2 internal SATA HDDs, 1 external eSATA I/F
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	8 dry-contact
Relay output	2 relay

CONTROLLER

Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Standalone **DVR**

Premium to your security **WEBGATE**

EH400H
H.264 Standalone Digital Video Recorder

Key Features

- 4ch Standalone DVR
- Full-frame monitoring/recording(120/100fp@D1) for all channels
- Adjustable recording quality and framerate per each channel
- Main and Spot monitor output via built-in 2 BNC and 1 DVI Port
- Supports Dual Codec(H.264, JPEG) / Multi stream
- 2 Internal SATA Type HDDs
- Supports external storage via eSATA port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)
- Provides full SDK for easy and powerful customization

Front

Back

Dimension (unit:mm)
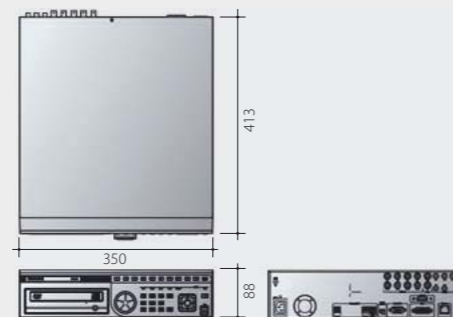
Specifications

VIDEO INPUT
Video input analog ch	4 BNC connectors (NTSC/PAL, auto detect)
Connectors	4ch, 75Ω BNC connector

VIDEO OUTPUT
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 DVI 1, 4 mode User defined sequence / alarm pop-up
Loop Output	4 with auto-termination

RECORDING
Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	120/100fps (NTSC/PAL) at D1 (4CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK
Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM
Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO
Input/output	4ch input / 1ch output

PTZ
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP
Storage devices	2 internal SATA HDDs, 1 external eSATA I/F
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O
Serial port	1 RS-232C, 2 RS-485
Sensor input	4 dry-contact
Relay output	2 relay

CONTROLLER
Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL
Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 Kg (No HDD)
Operating temperature	5℃ ~ 45℃ (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

147   148

H.264 Standalone **DVR**

LH1600C H.264 Standalone Digital Video Recorder

Key Features

- 16ch Standalone DVR
- Full-frame monitoring/recording(480/400@CIF) for all channels
- Adjustable recording quality and framerate per each channel
- Main and Spot monitor output via built-in 2 BNC and 1 DVI port
- Supports Dual Codec(H.264, JPEG) / Multi stream
- Supports external storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various mobile platform support (iPhone/Android Viewer, Mobile page)

Front

Back

Dimension (unit:mm)

413

350

88

Specifications

VIDEO INPUT

Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 VGA
	1, 4, 9, 16 mode
	User defined sequence / alarm pop-up
Loop Output	Not Supported

RECORDING

Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at CIF
Quality	5 levels of compression rate /
	Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO

Input/output	4ch input / 1ch output

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, and Panasonic

NETWORK

Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	2 internal SATA HDD
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection
	against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	2 relay

CONTROLLER

Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Standalone **DVR**

Premium to your security **WEBGATE**

LH800L   H.264 Standalone Digital Video Recorder

Key Features

- 8ch Standalone DVR
- full-frame monitoring/recording(240/200fps@CIF) for all channels
- Adjustable recording quality and framerate per each channel
- Main and Spot Monitor output via built-in 2 BNC and 1 DVI Port
- Supports Dual Codec(H.264, JPEG) / Multi stream
- 2 Internal SATA type HDDs (Optional DVD-R/W)
- Date/Time, Calendar, Event, Thumbnail, Smart, Text search available
- Provides bundle CMS program that manages 1,024 DVRs in various
  ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer, Mobile page)

Front

Back

Dimension (unit:mm)

Specifications

VIDEO INPUT

Video input analog ch	8 BNC connectors (NTSC/PAL, auto detect)
Connectors	8ch, 75Ω BNC connector

VIDEO OUTPUT

Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 VGA
	1, 4, 9 mode
	User defined sequence / alarm pop-up
Loop Output	Not Supported

RECORDING

Resolution	D1(4CIF), HALF(2CIF), CIF
Rate	240/200fps (NTSC/PAL) at CIF
Quality	5 levels of compression rate /
	Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK

Mode	Instant playback / search
Search type	Time, Calendar, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM

Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM

Alarm source	HDD fail, HDD almost full, fan fail, Password fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO

Input/output	4ch input / 1ch output

PTZ

Protocols	35 models including C1080, C1080PT-Z20, Pelco-D,
	Pelco-P, Samsung, and Panasonic

NETWORK

Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY

User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power On/Off, copy, Network MIC
IP filtering	Supported

STORAGE & BACKUP

Storage devices	2 internal SATA HDDs
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection
	against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O

Serial port	1 RS-232C, 2 RS-485
Sensor input	8 dry-contact
Relay output	2 relay

CONTROLLER

Device	Front panel, IR remote, Joystick KBD, Mouse

SOFTWARE

Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control Center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL

Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 Kg (No HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free voltage (100 ~ 240V), 50/60Hz
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

Software
SOLUTION

WebEye - WEBGATE mobile application - allows the authorized users to monitor and control all WEBGATE products under mobile environment anywhere and anytime.
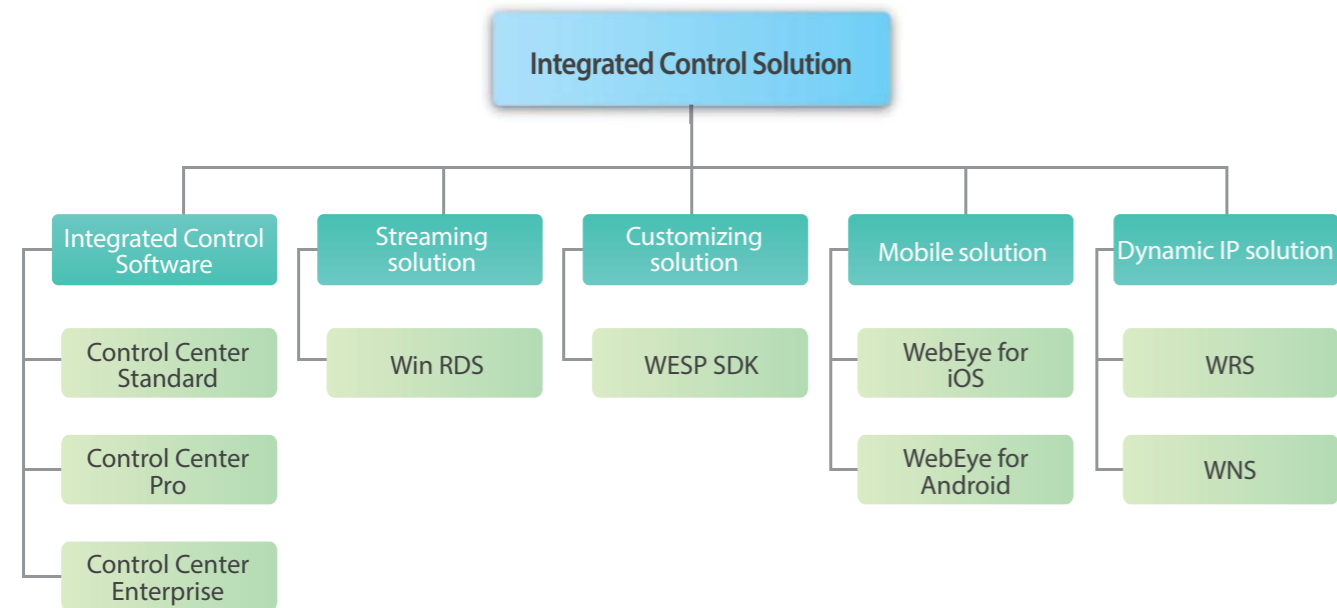
Convenient and Feature-rich **CMS**
WebEye for iPhone, Android Phone
Easy DVR access by **Mobile page**
Live Monitoring Anytime Anywhere

3G 9:41 AM

WebEye HD
v. 2.2

for Digital Video Surveillance

loading...

WEBGATE   HD1600F-PDR   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

REC   REC EVENT COPY NET HDD.INT HDD.EXT   ESC
LOCK   MENU

FUNC SEAR COPY RELAY MON PTZ SEQ MULTI

Centralized Management **Solution**

Integrated Control Software Solution : Control Center

Control Center is an integrated Central Managing Software of WEBGATE. Standard version is supplied for with products, and more powerful features are included in the Pro version. Enterprise version is equipped with Virtual Matrix feature.

Integrated Control Solution

- **Integrated Control Software**
  - Control Center Standard
  - Control Center Pro
  - Control Center Enterprise
- **Streaming solution**
  - Win RDS
- **Customizing solution**
  - WESP SDK
- **Mobile solution**
  - WebEye for iOS
  - WebEye for Android
- **Dynamic IP solution**
  - WRS
  - WNS

Streaming Solution : WinRDS

WinRDS(Windows Re-Distribution Server) is streaming server providing video/audio stream and alarm/status information to multi users. It is very helpful when distributing video stream via public website without DVR's recording performance reduction, or multiple Control Center operating is required.

There are some differences according to resolutions, but, WinRDS allows max. 512 video streaming inputs(channels) from DVR and can provide max. 512 stable video streams to Control Center(CMS), WebViewer(Mobile monitoring App) and web browsers.

Network

Max. 512 channels

WinRDS

Max. 512 Channels

Web Server

[Max. 512 video stream inputs from DVR, provides maximum. 512 video stream outputs to clients]

Building #1 Building #2

Operator Building #1

Operator Building #2

WinRDS

Admin Building #1~#4

Building #3 Building #4

Network

Operator Building #3

Operator Building #4
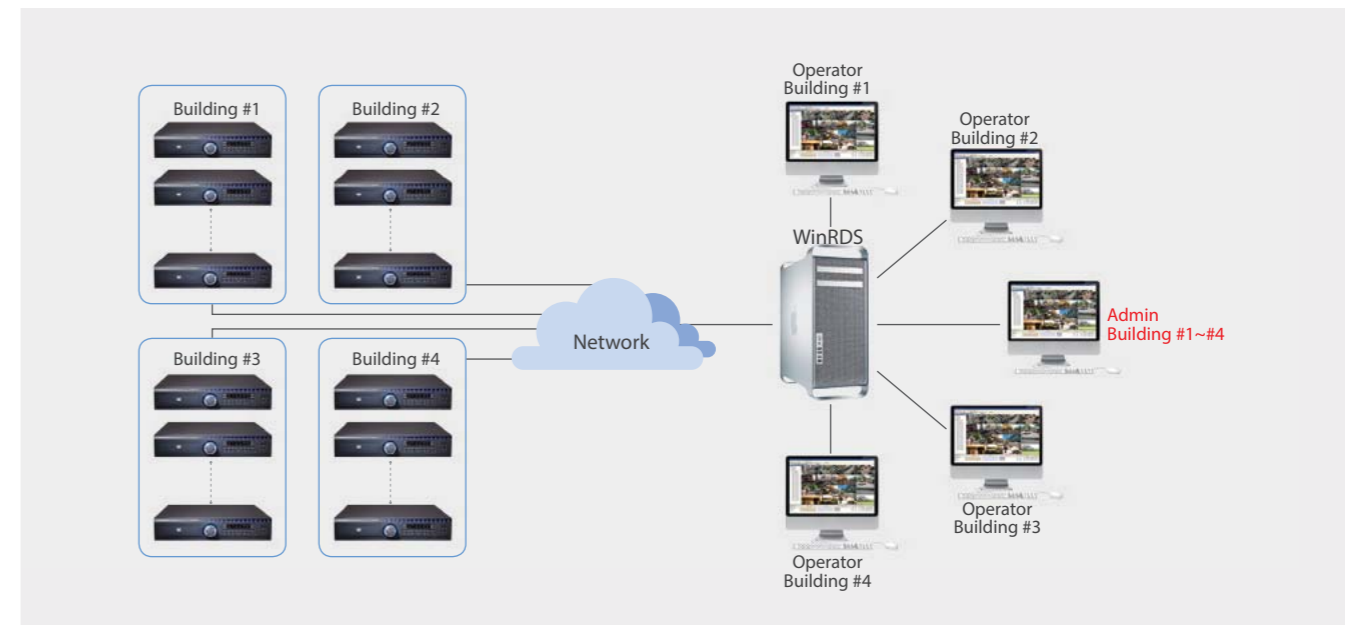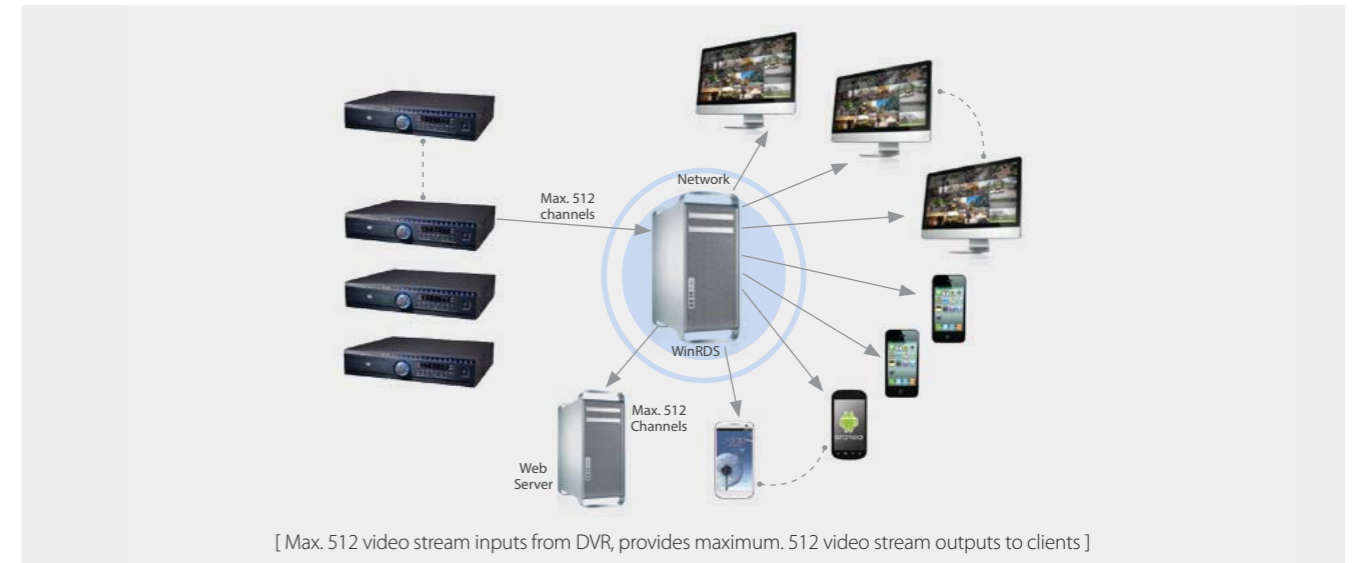
Centralized Management **Solution**

In case of large-scale video surveillance system, the administrator might have to assign several users' authority to individual DVR differently. This will be difficult and time consuming for administrator to assign each DVR with different authorities per user.

WinRDS allows max. 100 user registration, and the administrator can easily allocate individual user's authority. WinRDS helps the administrator to easily assign/modify user's authority through simple user interface.
If 2 Network Interface cards are used in a PC which runs WinRDS, user can separate network as DVR side and client side. So, security could be improved and lessen the network burden.
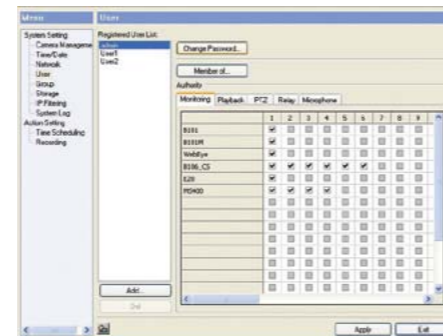
Users' authority setting trough WinRDS

Customizing Solution : WESP SDK

The powerful, abundant WESP(WEBGATE Embedded Standard Protocol) SDK has full function of Control Center with which any special application preferred by user can be developed with ease. From low level functions which have all functions of the products, to high level functions, showing images and controlling PTZ achieved in a single code, users can develop various programs to meet their needs.
In addition, It can be programmed with various languages (VB, VC++, VB Script, Java Script, .NET) since it is made based on Microsoft COM® Technology. Webpage programmer using Java Script can make featured application too.
All WEBGATE's products use single protocol called WESP so one single program can be adopted to all range of WEBGATE's products.
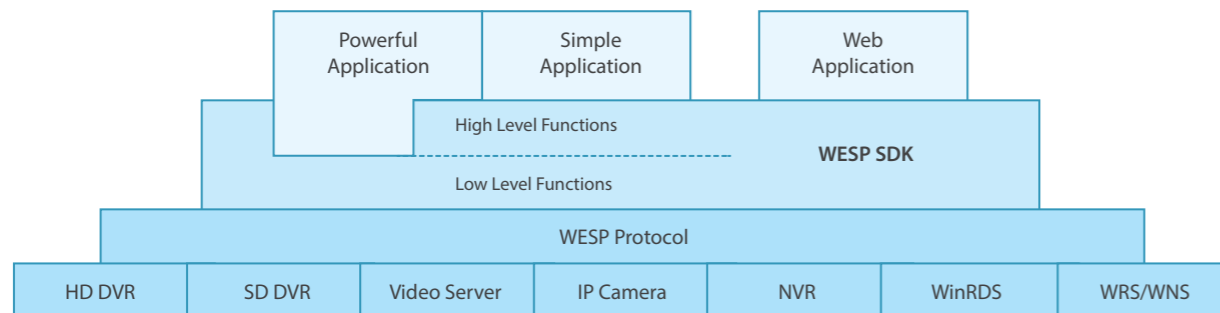
Dynamic IP Solution : WRS and WNS

WRS and WNS are solutions which enable remote users to access to units having dynamic IP address.
WRS(WEBGATE Registration Service) is different from competitors' DDNS service where complicated procedures such as member register, unit register are required. Instead, using Control Center, users can easily find their units and register it.
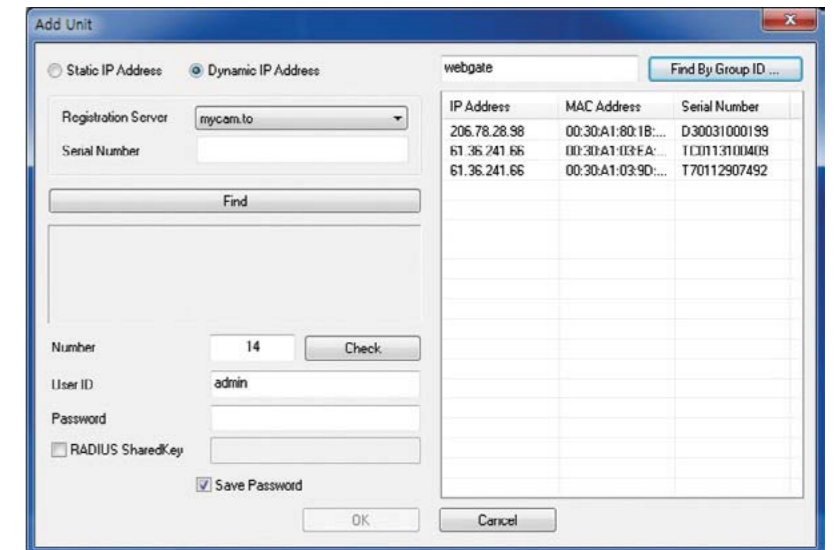
WNS(WEBGATE Naming Service) is DDNS service which changes IP address managed by WRS server into domain name address. It is required when a user wants to access the unit from web browser instead of Control Center.
All the WRS and WNS services are free to use and both were developed and managed in-house. This is why users do not need to worry about sudden service discontinues or malfunctions. Moreover, these services are being managed without a break in IDC (Internet Data Center) to protect from power failure.
The administrator can confirm DVR's DDNS operating condition by accessing WNS server as following figure.
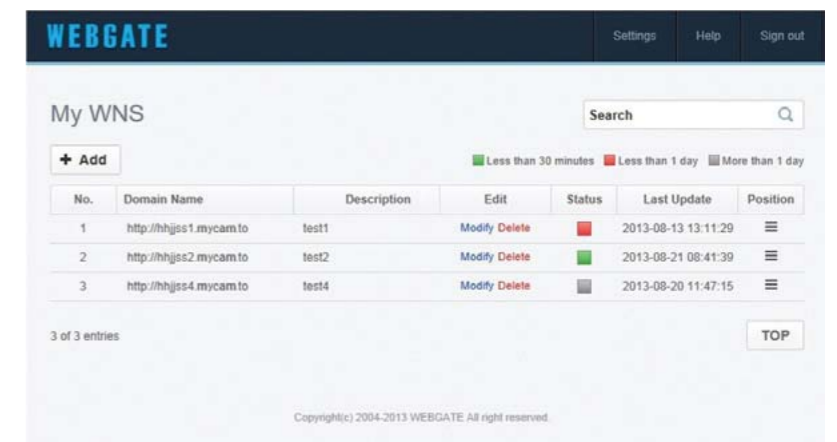
Centralized Management **Solution**

Mobile Solution : WebEye for iPhone, Android phone

WebEye is customized App working on iOS and Android which can manage multi devices under mobile environment. DVR or WinRDS can be registered and monitored or user can control PTZ too. System log to check system for power failure, HDD failure and Event log to check alarm status are supported.

Supporting full frame image monitoring and if connected to HD DVR, user can check details of image from received HD level high quality image through Digital Zoom function.

[HD video's digital zoom]
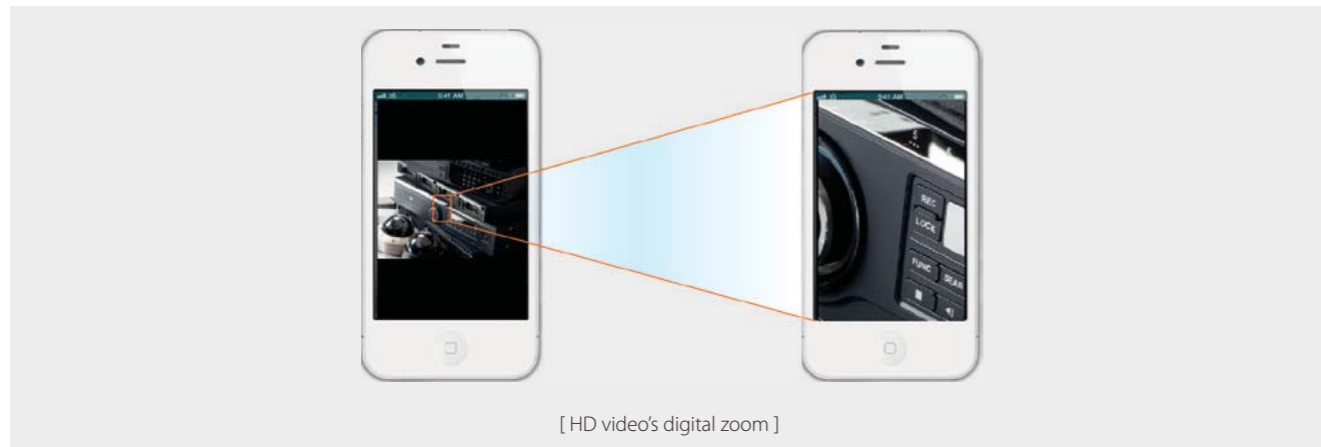
Provides Simplified Integrated Solution through Unified Protocol Policy

This all solutions are provided in unified single protocol called WESP(WEBGATE Embedded Standard Protocol). WEBGATE had been aware of how important it is to unify Protocol when WEBGATE started as IP camera expert and developed WESP which is in-house unified protocol in early of 2000. All products from IP camera, NVR, SD DVR to HD DVR developed using WESP protocol can be managed under single software(Control Center). Newly developing products also will be unified using the same software.

DVRs

WESP SDK

Control Center

WinRDS / WinDVRs

IP Cameras

1024 Units Management

Control Center can manage Max. 1024 units in one PC. By using "Distributed Connection Management", usage of CPU and network bandwidth are minimized. Therefore allowing one PC to effectively control many units in real time.

Network

Control Center

Control Center **Features**
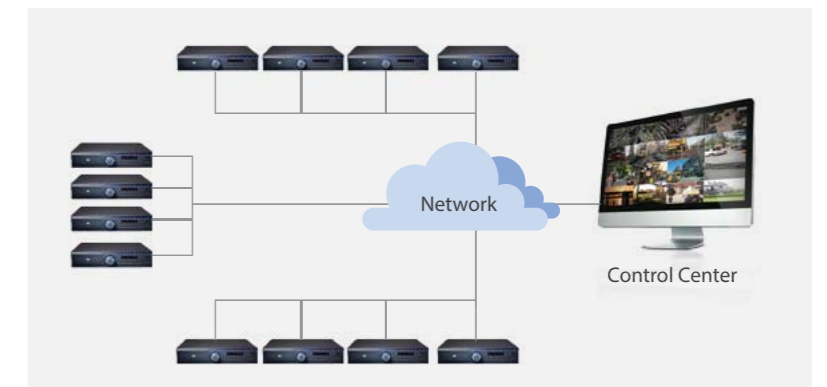
Control Center – Strong Central Management Software

Control Center is a strong central management software which can manage up to 1024 DVRs, and operator can monitor up to 256 channels at the same time through up to 6 monitors. Control center is classified as Standard/Pro/Enterprise version according to its function and performance. Also, each version has diverse functions for DVR management, video monitoring, playback and alarm events.

Flexible High Performance Video Engine

Over 12 channels at 1080p 30fps stream can smoothly run with new high performance display engine. If PC suddenly lacks resources because of other programs, software will automatically reduce frame rate of minimum channels for system stability. And once PC gets stable, it will automatically recover its original frame rate.

Specialized functions for the large-scale monitoring system

DVR's setting values and configuration information can be imported or exported. When using these functions, you can easily configure a lot of DVRs. Control Center supports automatic restart after PC booting or abnormal close, and you can use Action Log function which record DVR operating history. Also, it supports efficient system operation using dedicated Joystick controller, USB Joystick and others.

256 Channels Display via Auto Stream Selection

Control Center supports Max. 64 split-screen monitoring per monitor, Standard version supports 128 channels monitoring via 2 monitors, Pro version support 256 channels monitoring via 4 monitors out of 6 monitors.
Auto Stream Selection function supports the most optimized full frame monitoring during multi monitoring. This function, with the help of advantages of WEBGATE's products supporting multi streaming, selects stream automatically fitting screen division to avoid unnecessary network bandwidth or CPU consumption. For example, when HD DVR is connected, HD video for single channel mode, small sized SD video (D1, Half, CIF, etc.) for 16 split screen or smaller screen. This function works automatically, so user doesn't need to select stream or wait for it.

Supports Multi Monitor

Standard version supports maximum of 2 monitors and Pro version supports maximum 6 monitors to manage multi units effectively in one PC. Quick and easy setup on each multi monitor can be done through Layout manager.
Also to maintain screen configuration preferred by user, it can memorize user's configured screen configuration when power off then restore it when starts.

Virtual Matrix Function

Enterprise version of Control Center has a feature to mange 51 PCs as 1 server and 50 clients. Server Control Center can control screen of Client Control Center so user can monitor 3,000 channels and manage them throughout virtual matrix of 1024 x 51. Server and Client Control Center share information so either connecting to any PC among 51ea PCs, user can work under same screen configuration and unit information.
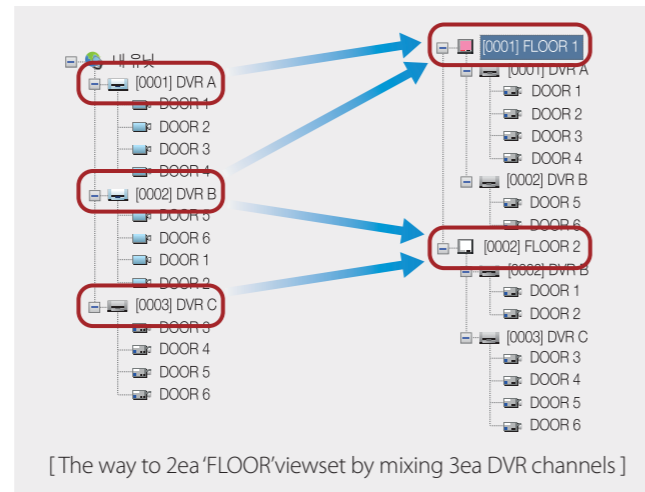
Control Center **Features**

ViewSet : Virtualizing units by channel grouping

Viewset function is grouping function where user can select preferring channels from multi units and it works as one of unit virtualized with new name.

Control Center provides various features such as user's own editable screen configuration, Alarm popup together with other channels included in viewset, sequence among viewset and so on.

This viewset features will be very useful for intensive monitoring on important spots selected by user.

[The way to 2ea 'FLOOR' viewset by mixing 3ea DVR channels]

Authority setup function per user

Control Center has user management function to limit feature on each user. Executing Control Center can be blocked by password or specific program such as 'setup', 'playback' can be blocked per user.

Pro version has more detailed function such as saving layout per user or block specific unit access.

Classified Map Function

Units can be managed in a unit of map by locating camera, sensor, mike and relay on the map. Monitoring video, controlling relay or displaying all set of videos registered in the map can be supported. Icon will be flickering to inform user of event such as MD, Sensor on, Relay on.

Moreover, Pro version supports sub-map or map link to support effective navigation feature among maps.

Status & Action Panel showing status of connected units in real time graphically

Status & Action panel is managing tool to show multi unit's status in real time. It can graphically show each unit's status for video connection, motion detection and alarm sensor. And also turn on relay, send voice warning message to make proper response to the occurred events.

MD/No Video	Shows camera status of DVR as no-video or Motion Detection
Sensor Input	Show current status of sensor.
Relay Output	Shows status of relay or control it.
Talk	Audio transfer to selected or all units through PC mike.
Recording	Shows status if recording is going or if any problem in HDD.
Alarm Notify	Select not to receive alarm of units

Diverse Event Management

If an event such as sensor alarm, motion detection was occurred, Control Center can provide diverse event actions like alarm popup, buzzer, latch window, image save and recording. And also, if used Rule-Based Auto Action, you can program the series of actions for a specific event and it helps efficient event management.

Control Center **Features**

Integrated event management via Rule-based Auto Action

When an event is triggered, user can set Control Center to make various actions such as image popup, warning sound (wav file format) output, E-mail sending, warning window's popup, move preset, quick record, save JPEG image and so on. Also, these actions can be scheduled to be performed only during the specific time period. Pro version further allows these actions to perform under definite rule or a scenario.

① Select action to perform when alarm triggers.

⑤ Action rule is completed.

② Select which alarm is to be trigger.

④ Set performing time for the action.

③ Set the description of alarm action.

[This picture is about how to make rule-based auto action for one of example that warning message of "Do not open the door" output from DVR(DVR0) with speaker if there is someone opening the back door of office (Sensor No.1 of Full-HD DVR) at lunch time (12 ~ 2 o'clock)]

This function is available with Control Center Pro version.

Keyboard shortcut and joystick keyboard support

The most of functions can be set into keyboard shortcut for easy and fast control. Based on this method, using the customized keyboard WKC-100 or USB joystick users will more directly select channels as well as control PTZ. With USB Jog/Shuttle, users can even control playback speed if they desire.

[Example for control PTZ from joystick]   [Example for monitoring playback frame by frame using jog & shuttle]

Event Log Save/Search Function

While Control Center is running, all the incoming event logs will be saved and managed in database. Users can search event logs after selecting preferable condition and the result can be exported as a file, or related video can be played by directly connecting the unit.

User Action Log Save/Search Function (Pro version)

Pro version not only saves events logs, but it also saves user's Control Center usage. Allowing users to see who performed such acts as playback/backup/close warning message to check if the operator followed the procedure.

Control Center **Features**

Calendar/Timeline/Smart/Thumbnail/Text Search

Control Center's playback program provides various search features.

Through timeline search, users can see graphically what kind of events happened during certain time period and can move to the desired time with ease.
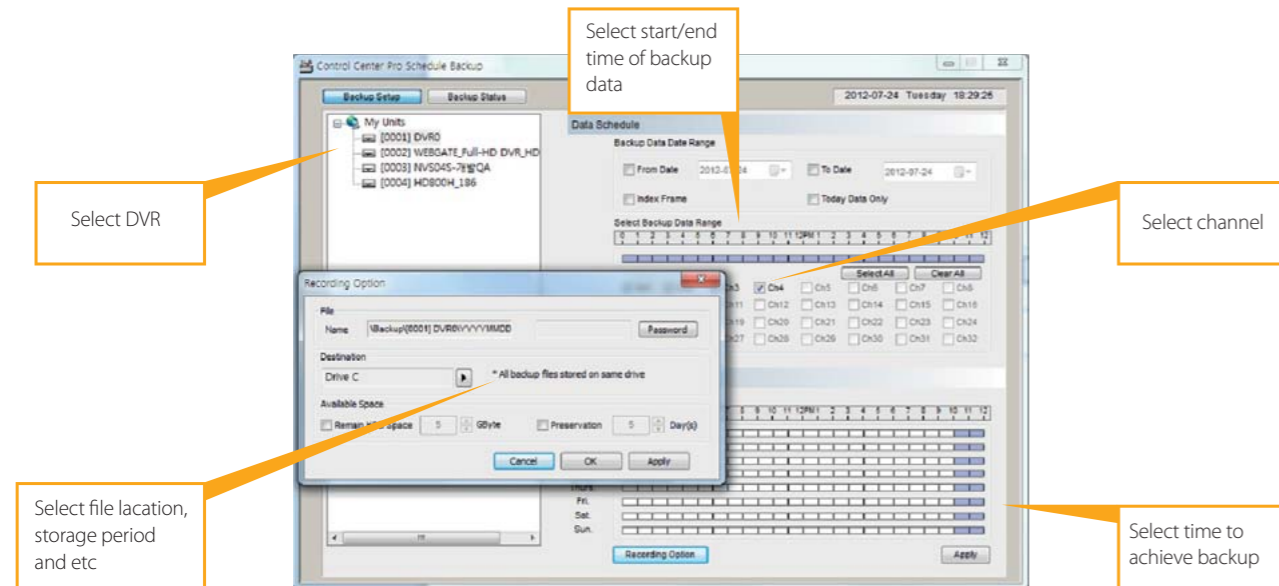
Smart search enables user to see images only with motion in designated area set by user.

Thumbnail search allows users to check long video files with glance of an eye.

Users can also search for text data of POS/ATM and other facilities stored in DVR and bring back the videos of when the text files were recorded.

Schedule Backup

Schedule backup runs through pre-set schedule which makes data of DVR, connected to Control Center, to be saved in PC's hard disks. It is possible to select unit, time to backup, channel individually, so users can effectively prepare a backup program.

Select start/end time of backup data

Select DVR

Select channel

Select file lacation, storage period and etc

Select time to achieve backup

Quick Recording

User can make instant recording while monitoring through Control Center by clicking the right button of mouse.

Playback At-the-PC

HDD used in DVR can be connected to a PC through USB or eSATA port and user can achieve playback, search, backup from the HDD through Control Center, whereas reading/writing on the HDD is impossible through Windows OS.

The feature will come in handy if DVR is damaged by intruder, and user needs to check the recorded video image. Simply install the HDD from damaged DVR to a PC, then through Control Center, user can see video images and make backups if necessary. This procedure only requires reading for HDD, so HDD will not have any affects when re-installed to the DVR.

In addition, if a full HDD backup is necessary, user can simply connect same or bigger HDD to a PC and use Control Center for backup.

Control Center **Software**

Control Center (4.x)

Key Features

- Central Monitoring Software (CMS) supporting Max. 1024 units
- Consists of Monitoring, Playback, Setup Program and Utilities
- Max. 64 split-screen per monitor
- Management of multi monitors at a PC
  (Std: 2, Pro:6, Ent: 4+50 Extended Monitor)
- Layered Map function
- Status & Action panel displaying statuses of connected units
- Rule based Auto Action (Pro, Ent)
- User's Action Log Save/Search function (Pro, Ent)
- Auto backup of DVR via Schedule Backup function

- Remote login to other Control Center to share unit information (Ent)
- Supports all WEBGATE products including IP camera, NVR, DVR, Software
- High-performance video engine displaying 12 Full-HD video streams in realtime
- Calendar, Timeline, Event, Text, Smart, Thumbnail search support
- Composition of user-defined split-screen via Viewset
- Alarm Pop-up / Sequence switching function
- User-specific permission settings
- Event Log Save / Search Function
- USB or dedicated Joystick Keyboard (WKC-100) support (Pro, Ent)
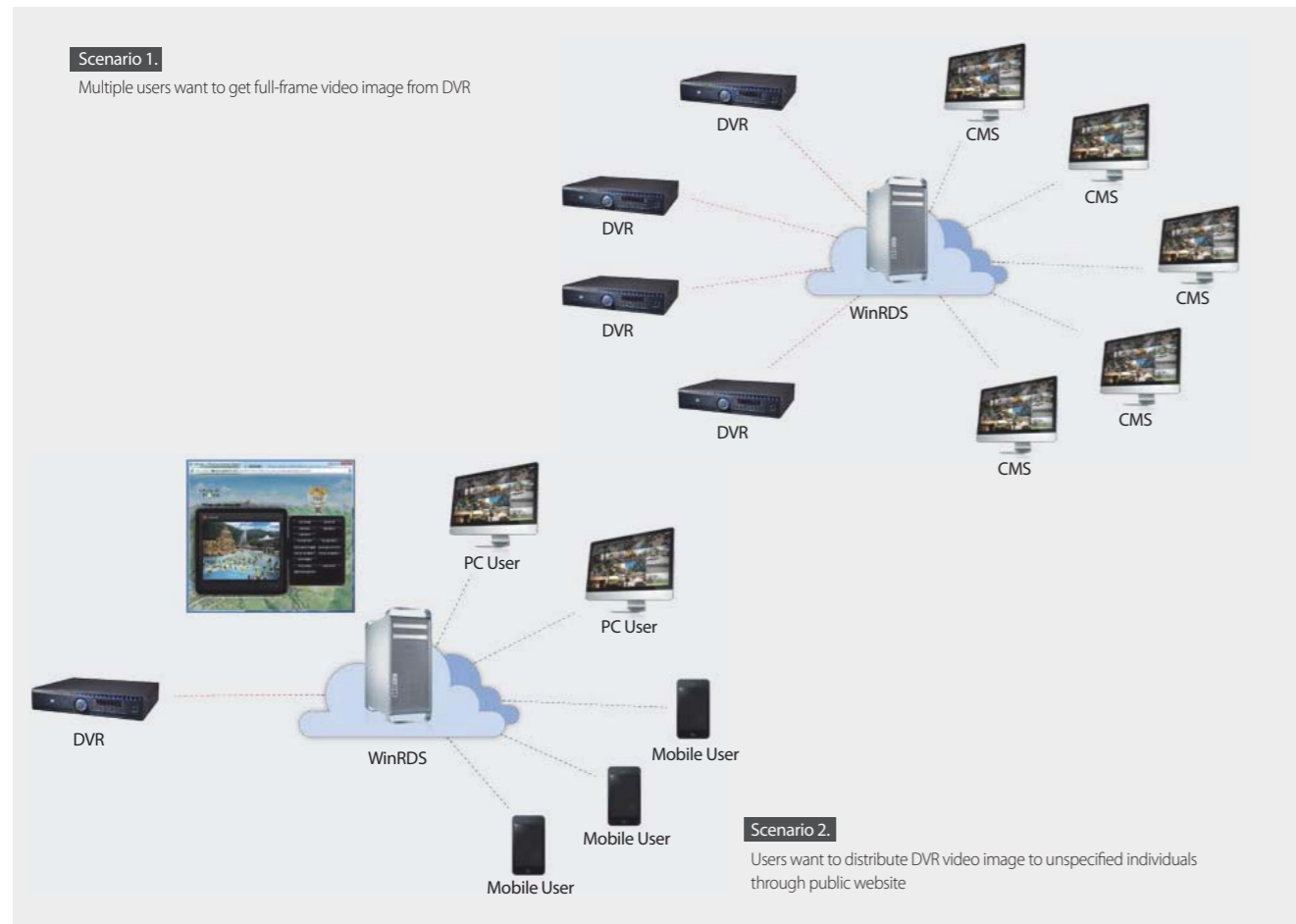- Playback/Search/Backup/Copy from a HDD that was removed from DVR

Specifications

	Control Center Standard	Control Center Professional	Control Center Enterprise
GENERAL			
Maximum # of Units	1024	1024	1024
Maximum # of Monitors (Views)	2	6	4+50 External Monitor
Maximum # of Supported Split-Screen	1/4/9/13/26/25/36/49/64	1/4/9/13/26/25/36/49/64	1/4/9/13/26/25/36/49/64
H/W Support	WebEye i-Rec HD DVR series LH/EH/MH DVR series MD DVR Series DS DVR series MPEG-4 WebEye Series NVS04S WinDVrS WinRDS	WebEye i-Rec HD DVR series LH/EH/MH DVR series MD DVR Series DS DVR series MPEG-4 WebEye Series NVS04S WinDVrS WinRDS	WebEye i-Rec HD DVR series LH/EH/MH DVR series MD DVR Series DS DVR series MPEG-4 WebEye Series NVS04S WinDVrS WinRDS
Video Format	H.264/MPEG4/JPEG	H.264/MPEG4/JPEG	H.264/MPEG4/JPEG
Audio Format	ADPCM/Truespeech/G.723	ADPCM/Truespeech/G.723	ADPCM/Truespeech/G.723
User Management	Yes	Yes Unit allocation to manage Monitor allocation to manage	Yes Unit allocation to manage Monitor allocation to manage
Account level	2	2	2
Max account	100	100	100
WNS (DDNS)	Yes	Yes	Yes
WRS (Dynamic IP Registration Service)	Yes	Yes	Yes

	Control Center Standard	Control Center Professional	Control Center Enterprise
MONITOR			
Performance	8 HD 1080p30	12 HD 1080p30	12 HD 1080p30 / PC
Realtime Audio	Yes	Yes	Yes
Remote PTZ Control	Yes	Yes	Yes
Remote I/O Control	Yes	Yes	Yes
Save snapshot image	Yes	Yes	Yes
Quick Recording	Yes	Yes	Yes
Alarm Log Viewer, Save/Search Event List	Yes	Yes	Yes
Auto Action	Yes Alarm Popup, Buzzer	Yes Alarm Popup, Buzzer, Latch Window, Relay, e-Mail, Preset, Recording, Save Image	Yes Alarm Popup, Buzzer, Latch Window, Relay, e-Mail, Preset, Recording, Save Image
Rule based auto action	No	Yes	Yes
Error Management (Latch function)	No	Yes Items of errors to be managed are selectable freely	Yes Items of errors to be managed are selectable freely
Action Log	No	Yes User action, auto action	Yes User action, auto action
Log Save	Yes	Yes	Yes
Status Viewer	Yes	Yes	Yes
Auto Connection (Lost & Recovery)	Yes	Yes	Yes
Watermark	Yes	Yes	Yes
Keyboard Shortcuts	No	Yes	Yes
Joystick Interface (WKC-100)	No	Yes	Yes
Viewset (group)	Yes	Yes	Yes
Map	Yes	Yes Section, Sub Map, Map Link	Yes Section, Sub Map, Map Link
Remote Login	No	No	Yes
PLAYBACK			
Playback	Yes	Yes	Yes
Backup (re4, avi)	Yes	Yes	Yes
Log Viewer	Yes	Yes	Yes
Timeline display (log)Timeline index search	Yes	Yes	Yes
Go to a certain timeCalendar search	Yes	Yes	Yes
Playback event image	Yes	Yes	Yes
Speed playback(0.5 ~ 64x)	Yes	Yes	Yes
Smart Search	Yes	Yes	Yes
Thumbnail Search	Yes	Yes	Yes
Text Search	Yes	Yes	Yes
Snapshot / print	Yes	Yes	Yes
Zoom in/out image, Brightness/Contrast	Yes	Yes	Yes
Audio play	Yes	Yes	Yes
Fix Layout	No	Yes	Yes
UTILITIES			
Web Viewer	No	No	Yes
Schedule Backup	Yes	Yes	Yes
System Requirement			
Recommended	Intel Core i5 3GHz 4GB of RAM 500GB HDD 1024MB PCI-E Graphic Card Support AGP Accelate 100/1000 Ethernet NIC Sound Card WinXP/Win7/Win8	Intel Core i7 3.4GHz 8GB of RAM 500GB HDD Radeon 1024MB PCI-E Graphic Cards Support AGP Accelate Support PCI-E 2.0 16x or higher 100/1000 Ethernet NIC Sound Card WinXP/Win7/Win8	Intel Core i7 3.4GHz 8GB of RAM 500GB HDD Radeon 1024MB PCI-E Graphic Cards Support AGP Accelate Support PCI-E 2.0 16x or higher 100/1000 Ethernet NIC Sound Card WinXP/Win7/Win8

Video Streaming **Software**

WinRDS (Windows ReDistribution Server)

Key Features

- Streaming Server to Re-Distribute DVR video stream to multi Users
- Max. 100 Users registration
- Max. 512 video stream input from DVRs (up to 500Mbps)
- Max. 512 video stream distribution to users (up to 500Mbps)
- Authority Management of DVR access and channel control based on user account

Scenario 1.
Multiple users want to get full-frame video image from DVR

Scenario 2.
Users want to distribute DVR video image to unspecified individuals through public website

Specifications

RE-DISTRIBUTE

Maximum number of input stream (Channels)	512 Channels
Supported Device	DVR
Max. number of input streams per video resolution (Unit : Stream)	512(CIF 7fps) / 250(CIF 30fps) / 170(D1 15fps) / 140(720p 15fps) / 80(1080p 15fps) Up to 500Mbps
Max. number of output streams per video resolution (Unit : Stream)	512(CIF 7fps) / 250(CIF 30fps) / 170(D1 15fps) / 140(720p 15fps) / 80(1080p 15fps) Up to 500Mbps
Multi-Streams per Channel	Support
Network	More than 1Gbit
Unit/Channel name transmission	Support
Remote Software	Control Center Standard / Pro / Enterprise
	Android : WebEye 2.0 or higher
	iPhone : WebEye 2.4 or higher

MANAGEMENT

Management Program	Control Center Configuration Tool
Max. number of user registration	100 Users
DVR Auto-detection in Local network	Supported
Batch registration of auto-detected DVRs	Supported
Authority management of DVR	Monitoring / Search / PTZ / Relay / Mic / Backup
Authority management of each Channel	Monitoirng / Search / Backup
Authority's batch registration of multi users	Support

PLAYBACK

Playback	Support
Backup	Issue of serial number to the individual users

ETC.

Watch-Dog	Support
License	Issue of serial number to the individual users

PC SPEC. RECOMMENDATION

CPU	Intel i7-870 CPU @2.93GHz or higher
Memory	4GB RAM
HDD Capacity	1TB or more
Network Interface Card	PCI-E Gigabit Ethernet NIC card x 2EA

Mobile Application **Software**
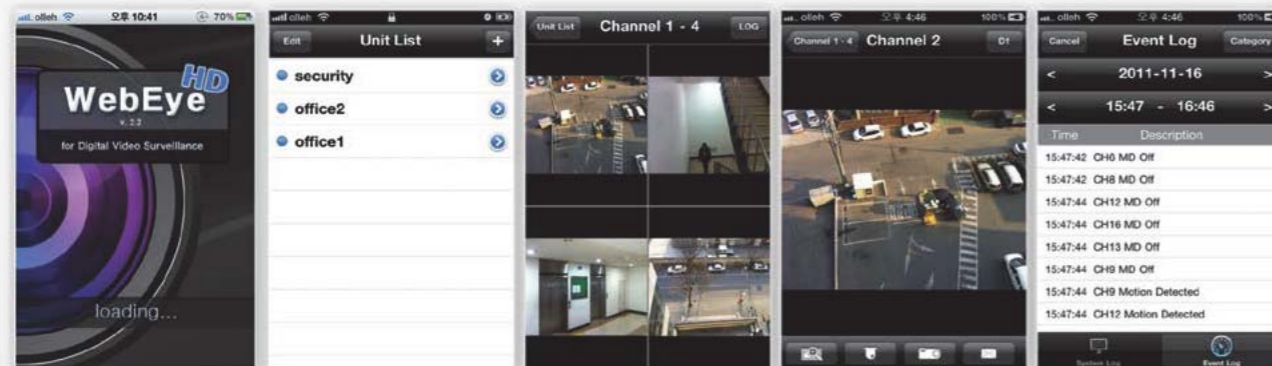
Premium to your security **WEBGATE**

WebEye

Key Features

- Mobile Viewer for iPhone / Android phone
- Supports HD/MH/EH/LH DVR series
- Max. 16 DVR Support
- Capable to connect a unit that has dynamic IP
- Supports QCIF/CIF/Half/D1/720p/1080p resolutions
- Single/Quad screen monitoring
- Video streaming up to 30fps
- Supports PTZ control
- Supports D-Zoom of HD video
- Unit status by searching system log
- Unit status check by searching System log
- Alarm history check by searching Event log

Screen Shots

Specifications

	iOS	Android
SUPPORT		
H/W	iPhone 3GS/4G, iPhone 5G, iPod Touch 3G/4G, iPad, iPad2	All Android Phones
OS	iOS 4.2 or higher	Android 2.3 or higher
Device	HD DVR series MH/EH/LH DVR series MD DVR series WinRDS	HD DVR series MH/EH/LH DVR series MD DVR series WinRDS
SERVER		
List Manager	Add, Remove, Modify, Rearrange	Add, Remove, Modify, Rearrange
Address	IP, URL(DNS/DDNS), WRS	IP, URL (DNS/DDNS), WRS
Port	Support	Support
ID/Password	Support	Support
Discovery	TCP, WRS (up to 16)	TCP, WRS (up to 20)
VIDEO INPUT		
Protocol	WESP	WESP
Standard	NTSC, PAL, HD	NTSC, PAL, HD
Resolution	QCIF, CIF, HALF, D1, 720p, 1080p	QCIF, CIF, HALF, D1, 720p, 1080p
Compression	JPEG, H.264	JPEG, H.264
VIDEO DISPLAY		
Division	Single or Quad	Single or Quad
Frame rate	MAX CIF 30, Half 20, D1 7, 720P 4, 1080P 1, JPEG 1 fps (It depends on network)	
DIGITAL ZOOM		
Support	4X	4X
Thumbnail View	-	Support
PTZ		
Protocol	CGI call	WESP
Command	Zoom In/Out, Tilt Up/Down, Pan Left/Right	Zoom In/Out, Tilt Up/Down, Pan Left/Right
LOG		
Type	System Log, Event Log	System Log, Event Log
Protocol	WESP	WESP
Search	Date (Event Log - Date + Time)	Date
System log filter	Nothing	Nothing
Event log filter	**Status&Action** "CH Pre Alarm Start", "CH Post Alarm Stop", "CH Recording Start", "CH Recording Stop", "Manual Recording Start", "Manual Recording Stop", "Unknown Code" **Text** "Text Input" **Motion** "Motion Detected", "MD Off" **Alarm** "Sensor On", "Sensor Off", "CH Network Event On", "CH Network Event Off", "CH Site Connected", "CH Site Disconnected", "CH Site Disconnected(Cont.)", "CH No Video", "CH Video Detected", "Bookmark"	**Status&Action** "CH Pre Alarm Start", "CH Post Alarm Stop", "CH Recording Start", "CH Recording Stop", "Manual Recording Start", "Manual Recording Stop", "Unknown Code" **Text** "Text Input" **Motion** "Motion Detected", "MD Off" **Alarm** "Sensor On", "Sensor Off", "CH Network Event On", "CH Network Event Off", "CH Site Connected", "CH Site Disconnected", "CH Site Disconnected(Cont.)", "CH No Video", "CH Video Detected", "Bookmark"
Limitied	Up to 1000	Up to 1000

174

Solution
Guides

Hotel & Leisure
Game & Casino
Bank
Transportation
Industry
Public & Education
Retail

WEBGATE **Solution Guides**

Hotel & Leisure

Prevents any negligent accidents of customers and employees as well as protect the important equipment in hotel or its facility.

Reliable management of entrance histories through differentiated high-definition recording

- Provides high resolution records of HD video image data to identify visitors
- Simple entrance search using date/time, thumbnail or smart search

Prevention of negligent accidents through the efficient monitoring of dangerous areas

- 6 times better video resolution than conventional analog video system with HD1080p camera
- 3 times wider viewing angle than conventional analog video system with HD1080p camera
- Effectively monitor elevator, indoor/outdoor swimming pools and restrict areas

Minimization of factors for a friction with customers

- High-definition parking lot monitoring
- Recognition of leaving/entering car number plates and conditions
- High-density recording of lobby situation and customer receptions

High-density Internet P.R. of the views around the hotel and resort, weather, etc.

- Real-time high-definition video P.R. of hotels and resorts via the Internet homepage
- Securing video clips for tourism and P.R. sites

Game & Casino

With real-time monitoring and HDTV level video recording without delay, customers are provided with a comfortable environment where they can feel safe.
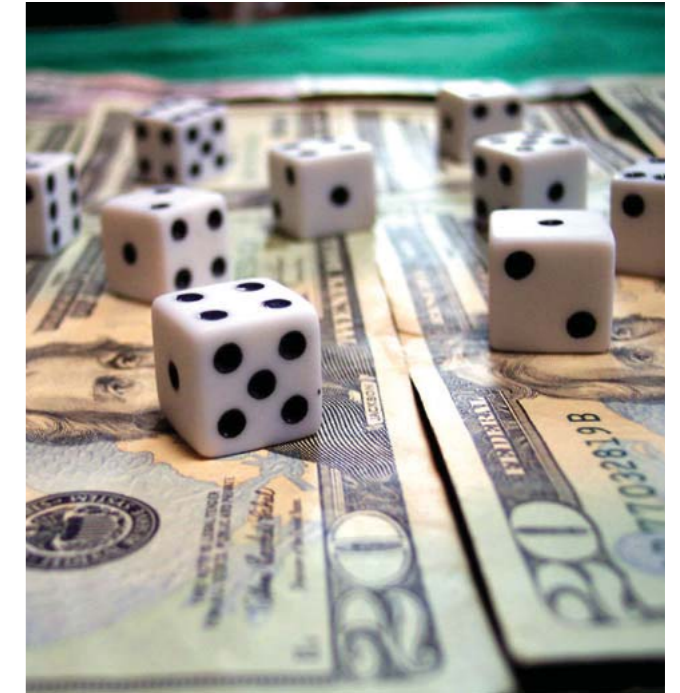
Prevention of cheating through differentiated high-definition and real-time recording

- Video recording of maximum 30 frames/second at 1920 x 1080 image size without delay time
- Monitoring of cheating by customers and dealers, and provision of optimal corroborative facts in case of an accident
- Minimizes unnecessary frictions with customers

Establishment of a large-scale system using HD-SDI matrix and CMS

- Decentralized video record processing by HD-SDI DVRs
- Provides integrated solution by HD-SDI matrix and/or provides network integration by CMS

Safe custody of recording data through high-capacity storage and mirroring function

- Provision of an external storage interface of maximum 128TB per a HD-SDI DVR
- Safe custody of data via mirroring recording method
- Provision of perfect measures against troubles in the storage media

Bank

Protects your precious financial assets from various crimes through wide monitoring and HDTV class video recording.

Thorough recording of visitors through differentiated high-definition video

- 3 times wider viewing angle than conventional analog camera with HD1080p
- Reliable recording of customer movement, and provision of high-definition image

Clear recording of customer face through applying a HD camera to the ATM

- 6 times better resolution than conventional analog camera with HD1080p camera
- Provision of a perfect solution compared to the existing CCTV recorded image in which face recognition was unclear
- Provides the perfect solution against unclear face recording result of SD system

Safe custody of recording data through high-capacity storage and its mirroring function

- Saves recorded data over 6 months worth
- Provides perfect measure against a trouble of storage media through dispersed storage, mirroring, backup, etc.

Reliable prevention of robbery, cheating and provides the corroborative facts

- Recording of maximum 30 frames per second at 1920 x 1080 resolution
- Prevention of a dispute with customers and employees

Integration of DVRs using a CMS

- Integrated control and real-time remote monitoring of dispersed DVRs at each branch
- Prior prevention of unjust data operation by using a Radius function

Transportation

Monitoring road traffic and protect the safety of passengers and crew at airport, harbor and railway.

Monitoring the waiting room and facility of airport, harbor and railway, using more wider view and clear image

- Search for suspicious people and monitor their actions
- Automatic recognition of persons on the blacklist through interlocking with face recognition system
- Monitoring of robbery case and damage of important facilities such as roads, airports, harbor, etc.

Monitoring of a real-time traffic situation

- Long-distance transmission of high-definition video to control center through fiber-optic cable
- Detailed confirmation of accident contents by using an auto-focus PTZ camera

Perfect identification of unjust passengers and provision of corroborative facts

- Ticket gate at railway station and subway station
- Monitors any violence in a bus and provides the best recorded video image

Excellent recognition rate of car license plate by high definition image

- Monitors any illegal parking
- Checks entering/leaving vehicles in parking lot

Industry

Through high-definition and real-time monitoring methods, prevents future hazards in dangerous facilities.

Provides optimal monitoring solution for important facilities

- Regulates intruders from hydro, thermal or nuclear power plants
- Protects power plant, factory, warehouse or building's facilities

Monitoring the operation condition of important equipment

- Remote monitoring of operation condition, and real-time checking through iPhone or Android Phone
- Can provide corroborative facts about control responsibility by using a reliable high-definition recorded image

Monitoring of a civil or architectural construction site

- Theft prevention of raw and subsidiary materials and the damage to facilities
- Monitoring in all directions of 360° by using wide angle and auto-focus PTZ camera
- Remote monitoring of the construction progress situation at a site

Process control of a factory or plant

- Process monitoring by using high-definition and real-time transmission
- Real-time monitoring and alarming of dangerous equipment in petroleum and chemical plant, etc.
- Detects possible accident risks to prevent workers and equipment

Retail

With the same design and installation method as the existing ones, you can still get HDTV class monitoring and its recorded video images with simple DVR operation.

Provision of the same design and installation method as the existing analog CCTV design

- No need of complicated network configuration and setup
- Provides a monitoring method you are already familiar with

Configuration of a full-embedded system guaranteeing reliability

- Not necessary of software installation or complicated operation
- Trouble-free embedded products

Simple monitoring, recording and playback method without needing a PC

- Do not need complicated setups for operation
- Simple DVR operation with front buttons or mouse click

Efficient store management through interface with POS system

- Minimize unnecessary frictions with customers
- Possibility of providing corroborative facts about exact money receipt and disbursements

Improvement of store service

- Real-time monitoring of store through iPhone or Android Phone
- Checking the display conditions of merchandise, and suspicious customers to prevent robbery

WEBGATE **Solution Guides**

Premium to your security **WEBGATE**

Public & Education

With wide viewing angle and high-definition video images, we provide optimal solution to manage public facilities and juvenile crimes that may occur at school.
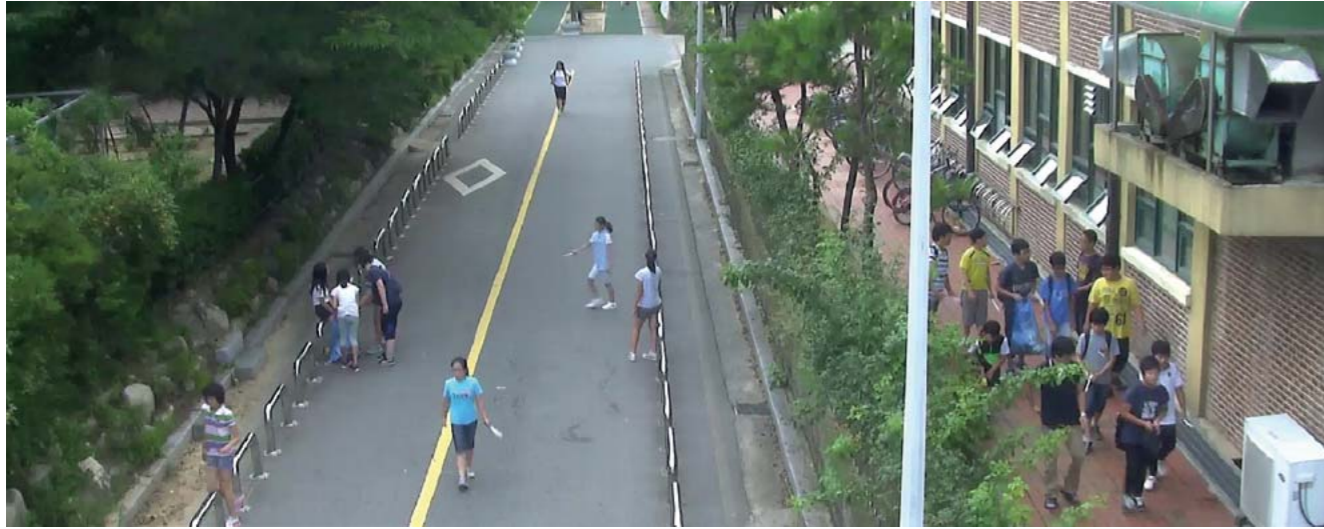
School zone monitoring

- Searches for suspicious people around elementary schools and report them to a police station
- Provides countermeasures against illegal intruder into a school
- Provision of the optimal solution to prevent juvenile crimes in school through wide-angle surveillance and high quality video

Real-time monitoring of cultural assets and advertisement of tourism through Internet

- Real-time and high-definition monitoring of major national cultural assets
- Prevention of damage to cultural assets by suspicious persons, and provides reliable evidence
- Prevents damages to cultural assets from suspicious people and provides reliable evidence

Provision of a perfect urban crime prevention solution

- Monitors vehicle movement by number plate recognition and particular region using high-definition video
- Interlocking with an emergency bell system
- Integration of a wide area crime prevention system using the CMS

Monitoring of a downtown park

- Monitoring of illegal activities in a park

HD-CCTV
Installation Cases

Resort
Hotel
Racecourse Park
Power Station
City Surveillance
Remodeling of Department Store
Recognition of License Plate

Resort

Installation Place

· Installation case of large scale resort composed of 32 floor building (4 below, 28 above)
· Resort facilities have 516 rooms, water park, 8 convention halls, wedding center and restaurants

Purpose

· To incorporate optimal video surveillance system to increase the efficiency in work and prevent accidents
· Protection of customers and facilities by installing high quality CCTV camera
· By using storage system and NMS(Network Management System) program, each department can monitor necessary scene using GUI(Graphic User Interface) client program. The system provides real-time monitoring through VPN network when an accident occurred

Results

· Provided the best Full-HD video surveillance system to prevent crime and protect facilities
· Stable and high quality video can provide obvious evidences for any conflicts between customers
· Provided real-time monitoring surveillance capabilities to security personnel throughout the resort

Installed Product List

Products	Qty
C1080D-AF(HD Dome Camera)	177
C1080BM (HD Box Camera)	120
C1080PT-Z20 (HD 20X Speeddome Camera)	27
OPT-SDI-TX1-RS485U (SDI-To-Optic)	324
OPT-SDI-RX16 (SDI-To-Optic)	21
HD800H(8ch HD DVR) 2TB x 4EA	41
MH1600H(16ch D1 DVR) 2TB x 4EA	1
40" LED Full-HD Monitor	4
21" LED Full-HD Monitor	41
Control Center Pro	1
Control Center Standard	5
WinRDS	1

Configuration
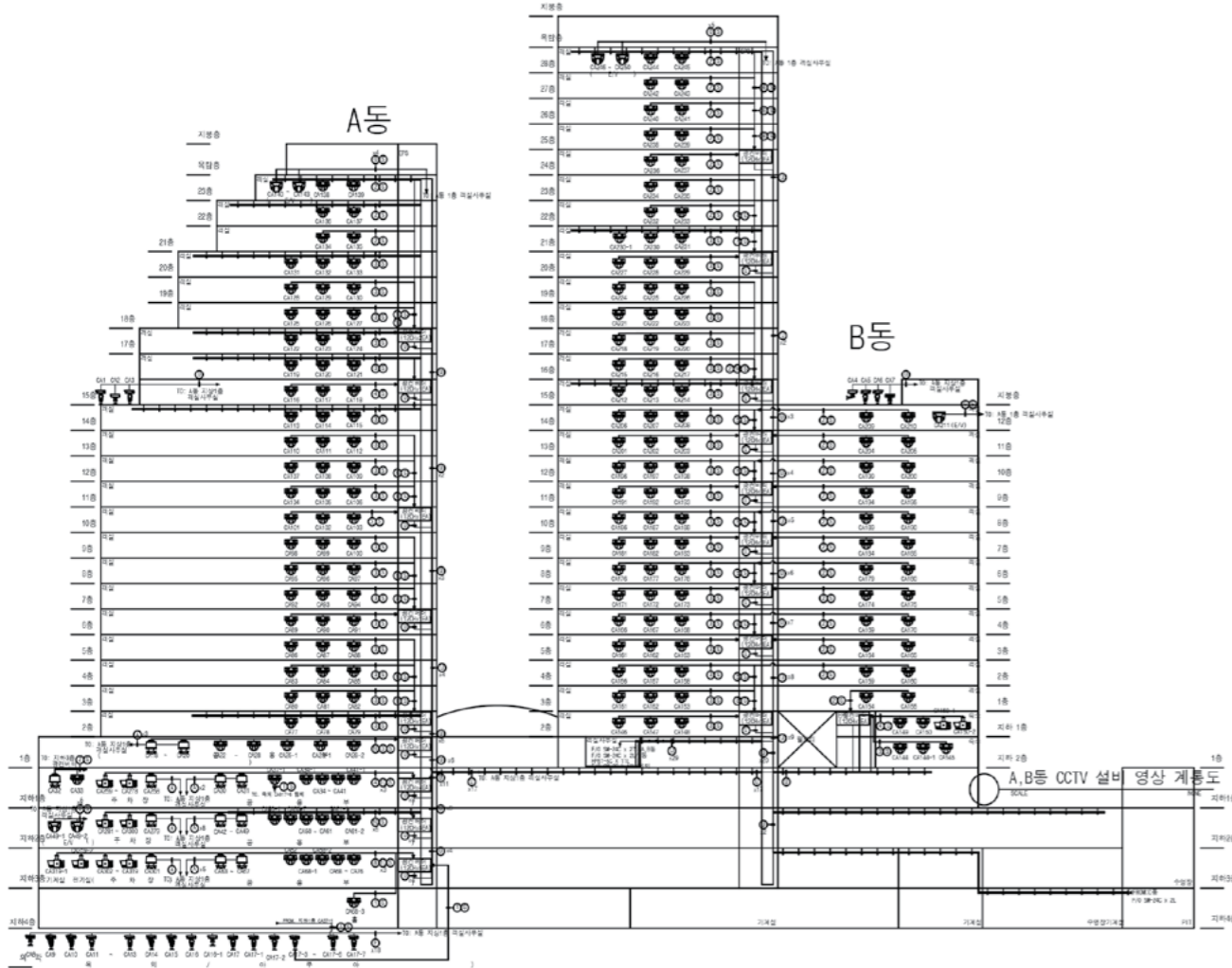
HD-SDI video's long distance transmission using optical cable

Because cameras were scattered all around the resort, the most of HD-SDI video transmission was done with optic cables.

· Camera's HD-SDI video signal has been transferred to optic transmitter via coaxial cable, and the transmitter converts the HD-SDI signal to optic and delivered the signal to the monitoring room.

· Also, optic receiver converts the incoming optic signals to HD-SDI and delivered to the DVR.

Camera
OPT-TX4-RS485U
Location : 10 floors in the building
Wall-Mount FDF

Location : Monitoring room in the 1st floor of building
DVR
OPT-TX16-RS485U
Rack-Mount FDF
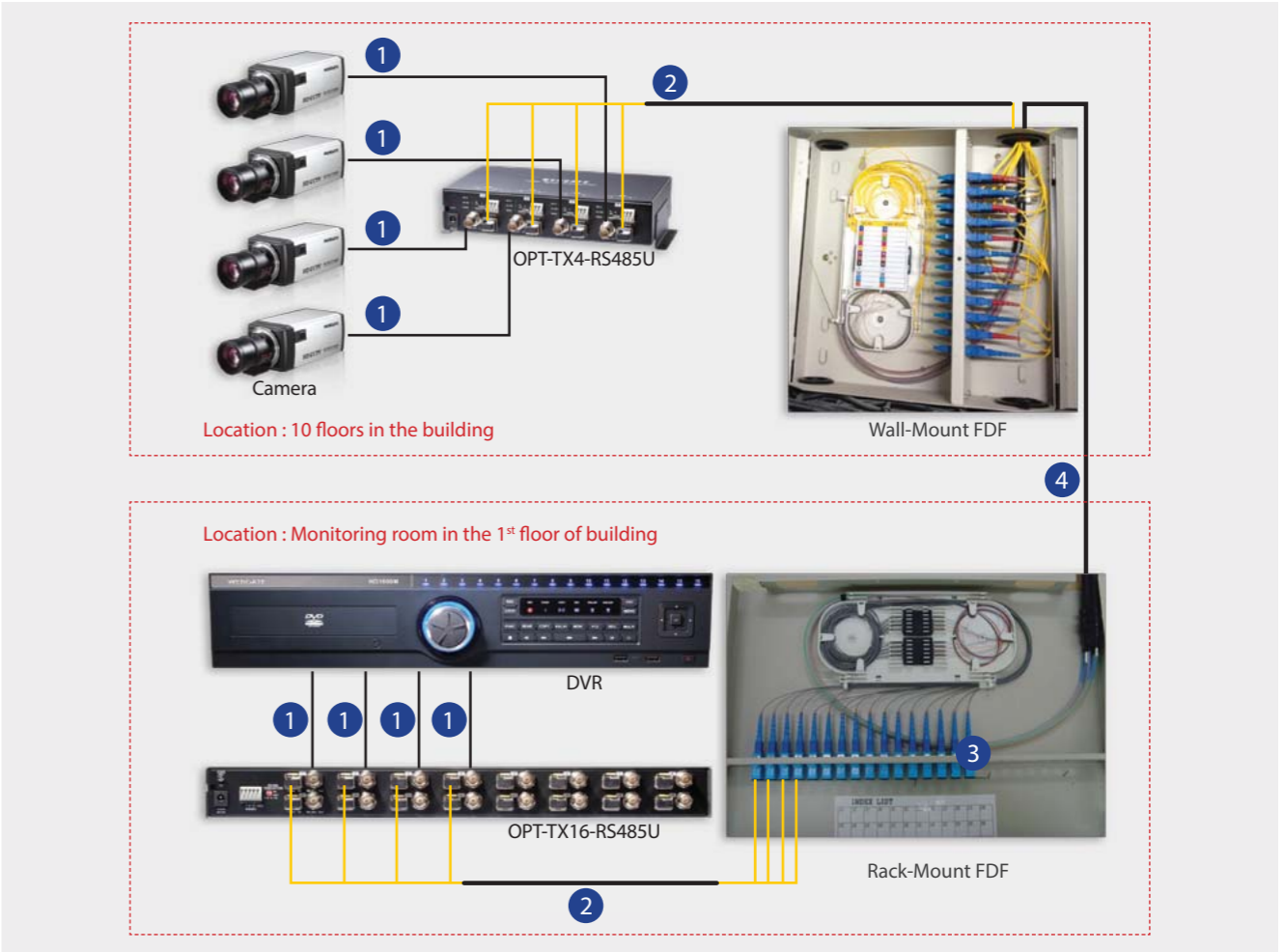
No.	Description	Remarks
①	HD-SDI Coaxial Cable	
②	4-Core Single-Mode Fiber-Optic Cable	
③	Pigtail cable for connecting with outdoor Fiber-Optic Cable	
④	Outdoor 4-Core Fiber-Optic Cable	

Integrated video surveillance system using Control Center Pro

Control Center Pro was used to the video surveillance system design. Control Center Pro has additional functions compared to Control Center Standard such as (1) up to 6 monitors support (2) Joystick controller interface (3) diverse actions for events and etc.

· System was designed for a WKC-100(Joystick Controller) to control DVR and PTZ via Control Center Pro.

· Control Center Pro accommodates maximum of 6 monitors. In this case, 4 large LED monitors(42") are connected to Control Center Pro and supports simultaneous 256 video channel monitoring.

· In order to efficiently monitor more than 300 cameras, Control Center's grouping function, ViewSet, has been used. Security personnel can easily place the grouped cameras' display to a monitor's split screen.

· Also, alarm pop-up has been incorporated with map function for direct and intuitive monitoring.

Video distribution solution using WinRDS

To preserve the recording performance of DVR, WinRDS was incorporated to support multi-monitoring from different locations simultaneously.

· In WinRDS installed PC, two network cards are inserted to separate the DVR network from client network and to reduce the network overload.

· There are total of 5 fixed Control Center clients. Different monitoring channel access authorities were given to security personnel to perform remote monitoring via Control Center and mobile phone.
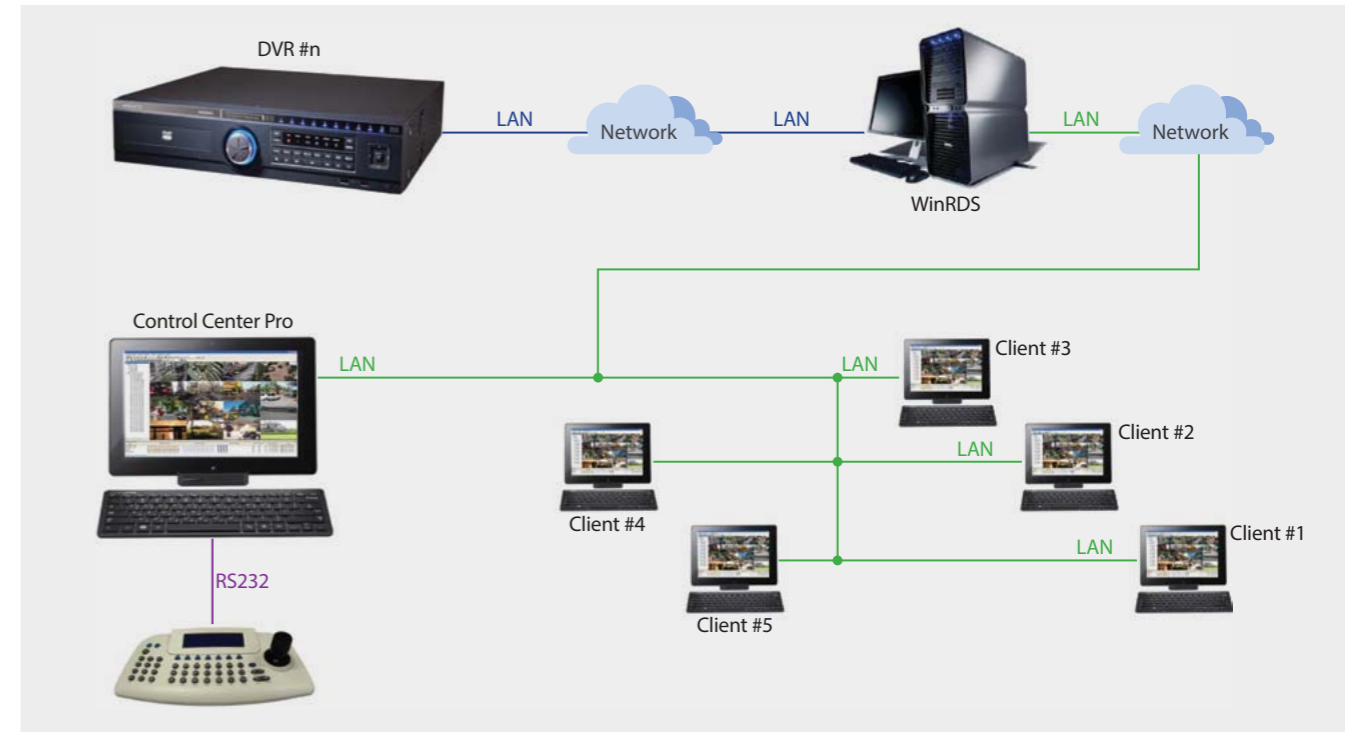
Hotel

Installation place

· Installation case of Luxury 5 star hotel composed of 20 floors
· 377 rooms including 34 suite rooms, grand ballroom accommodating 450 people, banquet hall of diverse size, fitness club, swimming pool, sauna, business center and wedding halls

Purpose and results

· Because the conventional SD-class analog camera provided very unclear video image which can not identify even the face of visitors. The hotel requested a solution to provide higher resolution and wider angle of view even using a single camera
· Full-HD high resolution and seamless video monitoring without frame drop
· Stable 30FPS monitoring and recording for important places like hotel lobby, entrance of parking lot
· Facility management department and security department are provided with the necessary video at their desk and mobile phone

Installed Product List

Products	Qty
C1080D-AF(HD Dome Camera)	153
C1080BM (HD Box Camera)	67
C1080PT-Z20 (HD 20X Speeddome Camera)	11
OPT-SDI-TX1/RX1 (SDI-to-Optic)	215
OPT-SDI-TX1S/RX1S (SDI & RS485-To-Optic)	16
OPT-12EXT (SDI-to-Optic 12CH EXTENDER)	18
HD800H(8ch HD DVR) 2TB x 4EA	29
MH1600H(16ch D1 DVR) 2TB x 4EA	1
Control Center Pro	1
Control Center Standard	3
WinRDS	1

Configuration
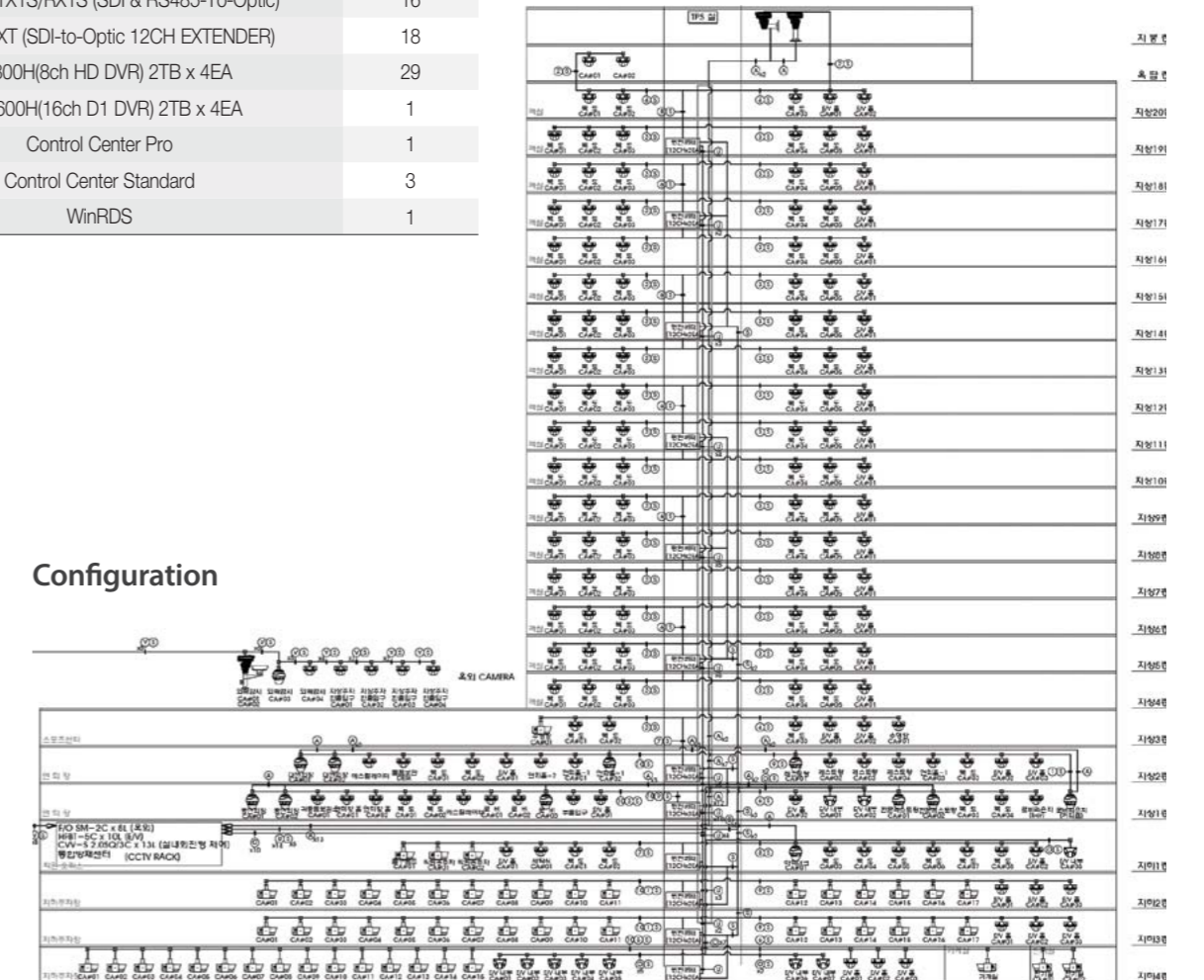
Resort

Installation place

· Large scale resort complex. It has 4 condominium buildings composed of 683 rooms, luxury village buildings, hotel, golf
  courses and etc.
· Additional facilities such as diverse restaurants, Teddy bear museum, recreational facilities and Aqua world

Result

· Full-HD video's optical transmission to get reliability of video data
· High definition video and wider monitoring angle which could not be supported by analog cameras
· Efficient video surveillance by real-time PTZ control without delay
· Full-frame monitoring of important areas and high quality video distribution to security guards

Installed Product List

Products	Qty
C1080D-AF(HD Dome Camera)	200
C1080BM (HD Box Camera)	18
C1080PT-Z20 (HD 20X Speeddome Camera)	40
OPT-SDI-TX1/RX1 (SDI-to-Optic)	218
OPT-SDI-TX1S/RX1S (SDI & RS485-To-Optic)	40
OPT-12EXT (SDI-to-Optic 12CH EXTENDER)	70
HD800H(8ch HD DVR) 2TB x 4EA	36
Control Center Pro	1
Control Center Standard	4
WinRDS	1

Configuration
(A condominium building)
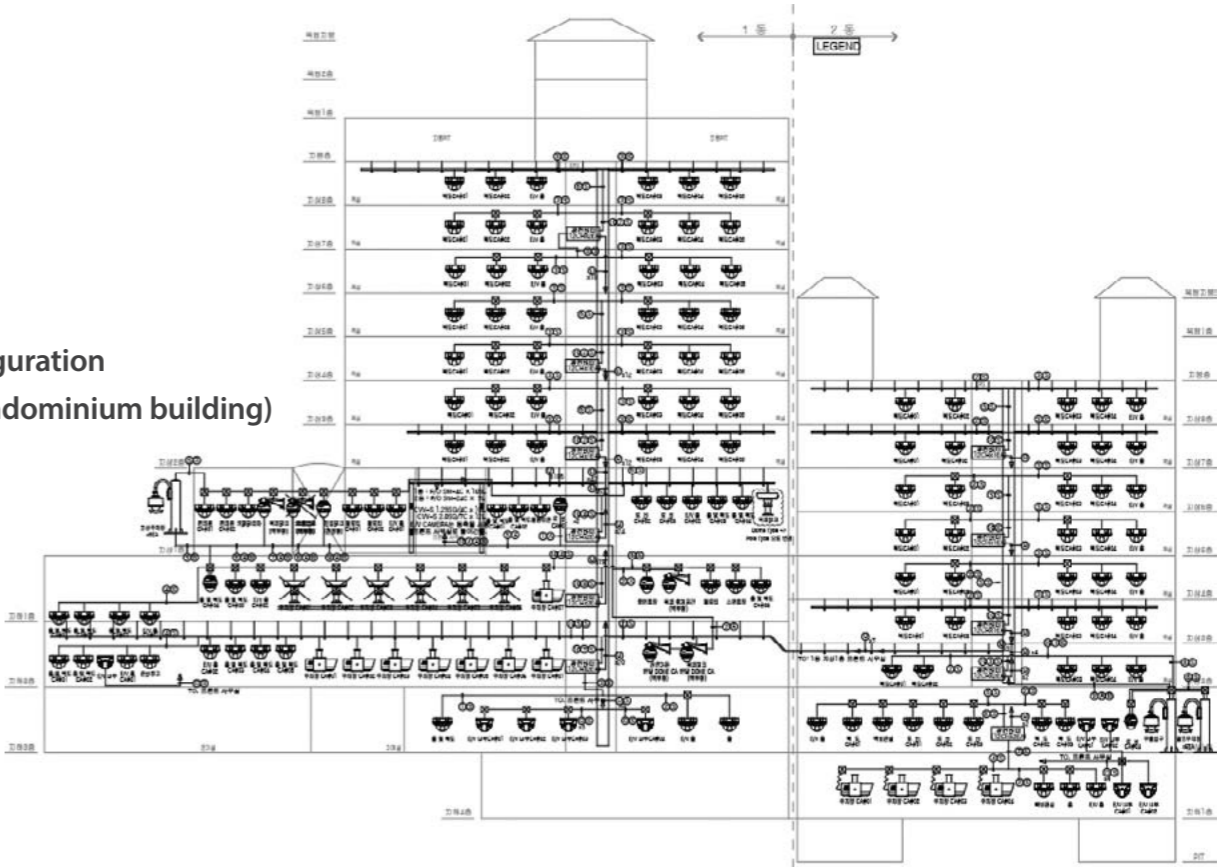
Racecourse Park

Installation place and purpose

· A racecourse park opening total 782 races throughout 94 days in a year with about 980 horses
· Because much prize money is provided through a horse race, securing the clear full-frame video data was crucial

Results

· Provided the best quality and lossless full-frame video monitoring and recording
· Provided the perfect still image owing to camera's Anti-motion blur function, and this is used to check the race ranking
· In order to discriminate the horse that passed the finish line first, system used WEBGATE DVR's step forward/reverse playback function
· In order to support user's easy operating, USB jog shuttle was interfaced with WEBGATE's CMS, Control Center Pro.

Installed products

· Box camera, C1080B which supports Anti-Motion Blur function
· 8ch Full-HD HD-SDI DVR, HD800H
· Jog Shuttle interface to Control Center Pro

Power Station

Installation place and purpose

· 5 power stations, and their construction sites
· Main key facilities which supply energy to nation. so, These sites required strict surveillance for the security

Results

· Monitors operating condition of major equipment
· 360° all-around video surveillance using 20x outdoor speed dome camera
· Working together with video analytics system to detect intruder on fence and smoke detection
· Clear and seamless high definition video provided monitoring of materials theft at power plant's construction site, and monitoring of construction progress

Installed products

· 20x outdoor speed dome camera, C1080PT-Z20
· 8ch Full-HD HD-SDI DVR, HD800H
· HD DVR dedicated external storage to keep 6 months recording data, NVS04R
· Control Center Pro and Joystick controller WKC-100

City Surveillance

Traffic Monitoring

School zone

Installation place and purpose

· Total 90 places for city surveillance

· School zones and crime concern places

· Provided high-definition video monitoring and still image. Considered about integration with existing CCTV system, easy operation and management

Results

· Improved the monitoring efficiency by wide monitoring angle (Security function and license plate recognition were performed by same camera)

· Monitoring and recording of all vehicle's city entry and exit. Quick identification when an accident occurred

· Crackdown of lawless vehicle inside school zone

Installed products

· Box cameras of C1080B, C1080BM which support Anti-motion blur function

· 8ch Full-HD HD-SDI DVR, HD800H

· Network system integration based on Control Center software

Remodeling of department store

Installation place and purpose

· A department store opened in 2006

· Video from more than 100 analog cameras are transmitted to central monitoring room through coaxial cables, and video monitoring/recording was executed by PC-based DVR

· Because the existing CCTV system was superannuated, system replacement was necessary

Results

· Reuse of existing coaxial cables

· Provided lossless Full-HD video with real-time without video latency

· Department store's CCTV operators who do not have enough knowledge about network was able to manage the new HD-CCTV system by same operation and management method with existing system

· As a result of system upgrade, enhanced the video monitoring quality for parking lot monitoring, theft prevention and frictions with customers

Installed products

· Existing camera's alternate product, Box camera C1080BM and Dome camera C1080D

· 16ch Full-HD HD-SDI DVR, HD1600M

· Network video monitoring through Control Center

Recognition of license plate

Installation place and purpose

· A Pay Tunnel's management agency wanted to record the vehicle license plate for those who passed the tollgate in high
  speed without paying and make them pay fines
· They requested camera, illuminator and recorder solution which can provide clear number plate image of high-speed
  vehicle's number plate even at night
· They needed solution for 10 tollbooth and each recorder should keep the recorded video data more than one year

Results

· WEBGATE successfully passed the readability test with IR illuminator integrated HD-SDI camera. (DIRC-1080BL)
· The test was executed at night time for diverse cars which are moving at speeds higher than 80Km
· By interfacing external storages(NVS04R) with 8-channel HD DVR(HD800H), WEBGATE was able to provide 1 year recording
  solution to the tunnel management agency

Installed products

· IR illuminator integrated HD-SDI camera (DIRC-1080BL)
· 8ch Full-HD HD-SDI DVR, HD800H
· HD DVR dedicated external storage, NVS04R

HD-CCTV
TECH NOTE

HD class video quality as the biggest issue in the CCTV market

Recently the biggest issue in CCTV market can be said to be the high resolution application of HD or Megapixel class more than anything else. Not simply enhancing the camera's video quality, but the change of resolution from the existing SD(720x-480:NTSC) class to HD(1920x1080:HD1080p) class requires a change in the whole system. In the HDTV era, high definition and high visibility were required in the market, but the SD class(NTSC/PAL) image was not enough to meet the requirement due to its limitation in resolution. The market requirement for high definition started to be applied to the CCTV market in a Megapixel IP camera type along with the development of a HD class image sensor at a reasonable price, and recently HD-SDI transmission technology was grafted on the CCTV market, starting to be introduced as a product group of HD-CCTV.

Introduction of HD-SDI transmission technology

In order to adopt HD class video into CCTV system, HD-SDI transmission technology and dedicated chip solutions were introduced in the security market. Because HD-SDI is easy to understand and easy to use, it provided easy way to build the HD surveillance system. Moreover, because this technology was already verified in the broadcasting market, it can be said that HD-SDI surveillance systems already have the reliability.

HD-CCTV as a HD system?

In here, we want to define a CCTV to transmit the SD class video through a coaxial cable as the SD-CCTV, and a CCTV to transmit the HD class video through a coaxial cable using HD-SDI transmission method as the HD-CCTV. This is because the HD-SDI transmission method was developed as the most suitable transmission method to transmit the HD class video without degradation of video quality, being used as the standard transmission method between broadcasting systems for HDTV system. Now, the high definition video security market is expected to develop into a new shape through competition and fusion between the HD-CCTV market and the IP market.

SDTV ➡ *HDTV*

SD-CCTV ➡ *HD-CCTV*

HDTV와 HD-CCTV

HD-SDI transmission method used in HD-CCTV system

HD-SDI is a standard specification to transmit video between HD class broadcasting systems. HD-SDI is the abbreviation of High Definition Serial Digital Interface, which means the method to convert video signal into serial video data and transmit it through a coaxial cable without compressing it. HD-SDI was standardized by SMPTE, which describes all the contents of electric interfaces, data formats, auxiliary data and video formats. The feature of HD-SDI transmission method is that because it transmits video as digital signal, it does not make degradation of video quality within a distance where data are not lost. It can transmit audio and control signals as well as images, and it seems that it will be able to supply power in the future.

The HD-SDI transmission method is basically different from SD class transmission method. As shown in the table below. Although they use the same coaxial cable, but there is big difference that SD class video is using the analog transmission method and HD-SDI is using the digital transmission method. In addition, the HD-SDI transmission method is one of the SDI transmission methods, which can transmit video up to 1080p30. This is defined in SMPTE 292M, which uses 1.485 Gb/s transmission data quantity and 750MHz transmission frequency.

	SD-CCTV	SDI transmission method		
		SD-HDI	HD-SDI	3G-SDI
Signal type	Analogue	Digital	Digital	Digital
Standard	NTSC, PAL, SECAM	SMPTE 259M	SMPTE 292M	SMPTE 424M
Data transmission volume	X	360 Mb/s	1.485 Gb/s	2.970 Gb/s
Transmission frequency	X	180 MHz	About 750 MHz	About 1.5GHz
Max resolution	720 x 480i or 720 x 576i	960x486@59.94i	1080i60, 1080p30	1080p60

HD-SDI : A technology to transmit HD video digitally through a coaxial cable without compressing it.

HD-CCTV, HDcctv, HD-SDI terminology

HD-SDI : Technology to transmit HD video digitally through a coaxial cable without compression
HD-CCTV : HD class video CCTV system realized by using HD-SDI transmission method
HDcctv : HD-CCTV assured its specifications and performance by HDcctv Alliance

Example of HD-CCTV system configuration

The figure below is an example of using a HD-SDI transmission method, showing that various types of cameras are connected with a HD-SDI DVR using the HD-SDI transmission technology to realize the system. In here, HD-SDI cameras, repeaters, DVRs, etc. were used. A repeater can be used in the middle of a line to extend the transmission distance of the HD-SDI signal, and the existing SD camera's video signal can be changed to the HD-SDI signal through a converter.
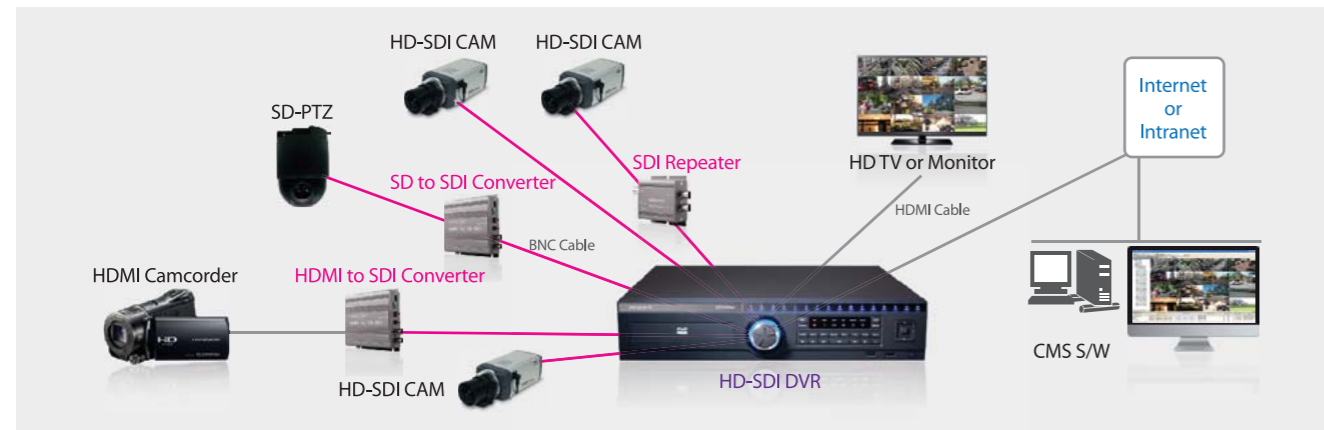
Feature comparison of HD-CCTV system

The following table summarizes the differences between HD-CCTV, SD-CCTV and IP based system. In example, HD-CCTV shows that the camera image can be recorded without being affected by network errors because the the most important part of video transmission is using coaxial cable. This is just one of the key factors in the security system.

	Transmission method		
	HD-CCTV (HD-SDI)	CCTV	MP IP Camera
Pathway to IP Network	DVR or Streamer	DVR or Streamer	NVR or Router
Recording Immune to IP LAN Failure	Yes	Yes	Usually Not
Works with Existing Coax	Yes	Yes	Needs Adaptor
Local-Site Live View Immune to IP LAN Failure	Yes	Yes	No
Near Zero Latency	Yes	Yes	No
Comprehensive, Global Interface Standard	Yes	Yes	No
Guaranteed 100% Plug-and-Play	Yes	Yes	No
100% Digital	Uncompressed	No	Compressed
Delivers 720 or 1080 Video	Uncompressed	No	Compressed
Delivers full frame rate HDTV	Uncompressed	No	No
Commissioned Cost per Video Channel	Medium	Low	High
Delivers 〉 2-MP Video	Planned	No	Compressed

What is the weak point of the HD-CCTV system?

Short transmission distance?
The transmission distance of existing SD-CCTV is 300m or more when using a coaxial cable. The transmission distance of HD-SDI is about 150m~200m when using a coaxial cable exclusive for the HD-SDI. Of course, there may be a little difference depending on quality of coaxial cables. Even using the existing coaxial cable can transmit video at least 100m. For your reference, the transmission distance of the UTP cable(-CAT5,6) for network communication is about 100m, and accordingly, the transmission distance may not be a weak point. In addition, using a commercialized HD-SDI repeater or optical transmission converter can extend the transmission distance as much as one likes.

Remote monitoring(network) is impossible?
HD-SDI camera can be networked through a DVR or video server, so there is no problem in integration through a network. Users can also monitor the HD video with their smart phones with the service provided through DVR. In security market, connection of camera to a storage device(DVR) is essential, and this is why network monitoring is possible without any additional equipment.

Full-HD 1080p resolution is enough?
Full-HD video has 6 times better resolution than SD, but considering the aspect that SD camera's video quality is deteriorated through analog signal transmission and the degradation of still image due to interlace scanning at image sensor (composed of a field of image frame taken at two different times), the video quality difference between SD class and HD class exceeds the 6 times difference by far. In addition, realistically most of the monitoring equipment(HDTV, LCD monitor, etc.) has the 1920x1080 resolution. The HDTV broadcasting also uses the 1920x1080 screen size, so you can do monitoring HD resolution at the most competitive price. Now, considering the reality that HDTVs are supplied in a full scale just worldwide, the Full-HD 1080p resolution is expected to become the most competitive resolution for a considerable period.

Prospect of HD-CCTV system

The request for HD-CCTV by the users already accustomed to high video quality of HDTV are considered very natural and expected. Price can be a burden but it is expected to approach the customer required level in near future.
The HD-CCTV system introduced for the first time in 2009, started to be released in a full scale from 2012. According to IMS research published in 2013, HD-CCTV will have full-scale growth from 2013 and will have average 64% growth rate to 2017, and expected to have 1.4 billion market share. It seems that a number of sites requiring the high resolution such as important facilities, banking sectors, etc. will be changed into the HD-CCTV during this period. With previous experiences of SD-CCTV system design, installation, management, we are able to easily maneuver HD-CCTV products. We can operate small system to large scale system with no problem. As an example, its installation at a place requiring high video quality such as highway control system, casino, bank, etc. is being discussed in a full scale. If someone buys a new TV, it is expected to be HDTV. So, it is only natural to expect that getting a new CCTV means the installation of HD-CCTV system in near future.

6 times bigger resolution size

HD-SDI standard allows 1080p resolution image together with 720p. In case of 1080p resolution, it has 6 times bigger image size than SD level resolution. Therefore, it will be able to be used in the special market such as car license plate recognition or face identification of criminal requiring High Resolution.


High Definition

1080p shows over 1200TV lines in both horizontal and vertical resolution. It is decidedly superior to the SD resolution which can only show less than 700TV lines
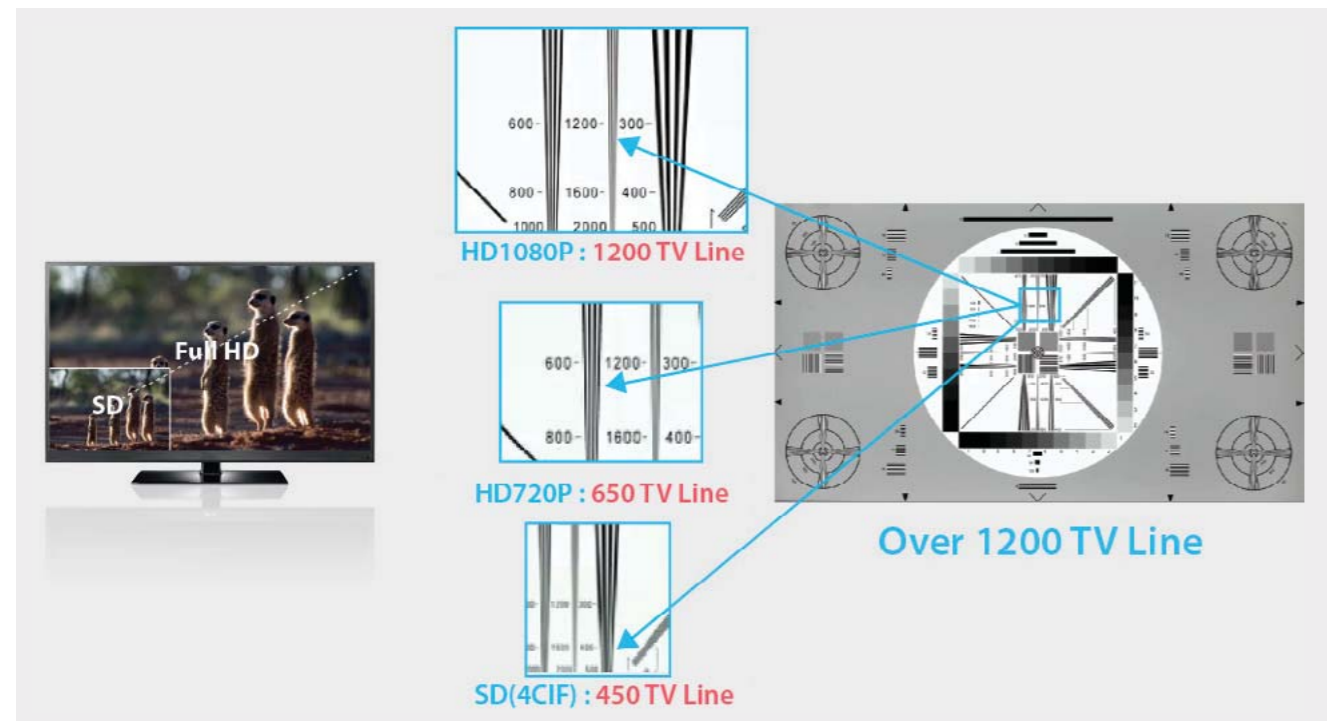
Face Identification

Below pictures show the difference between 1080p image and SD image. These pictures were taken under the same environment and you can clearly see the big difference in parts of face and text identification.
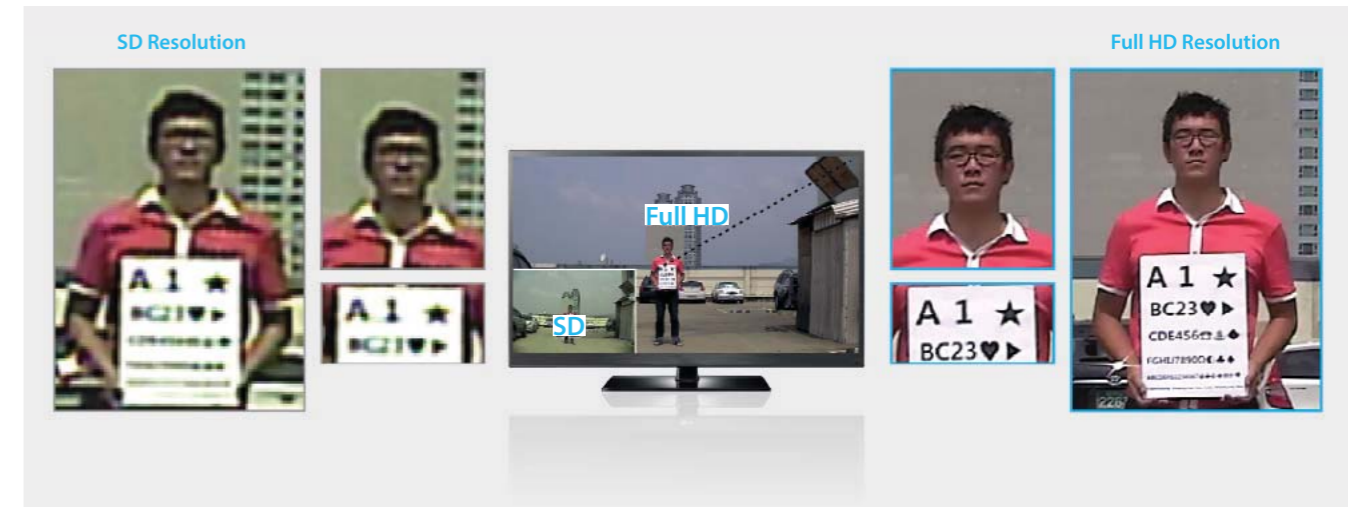
Digital transmission without video quality degradation

In case of SD-CCTV, transmitted analog video signal's quality is decreased by external noise and during the digital converting at DVR, but HD-SDI cameras execute image processing, get digital video and transmit the digital video to DVR without any converting process. So, there is no video degradation during the transmission and DVR processing, and user can monitor clear video images.

Uncompressed video for monitoring

Below pictures show resolution chart image taken from diverse 2 Mega-Pixel cameras. Since HD-SDI cameras do not compress video, it shows more clear image, and superior horizontal and vertical resolution.

"L"2M IP Camera　　　"S"2M IP Camera　　　WEBGATE C1080 HD Camera

650 TV Line　　　750 TV Line　　　over 1,200 TV Line
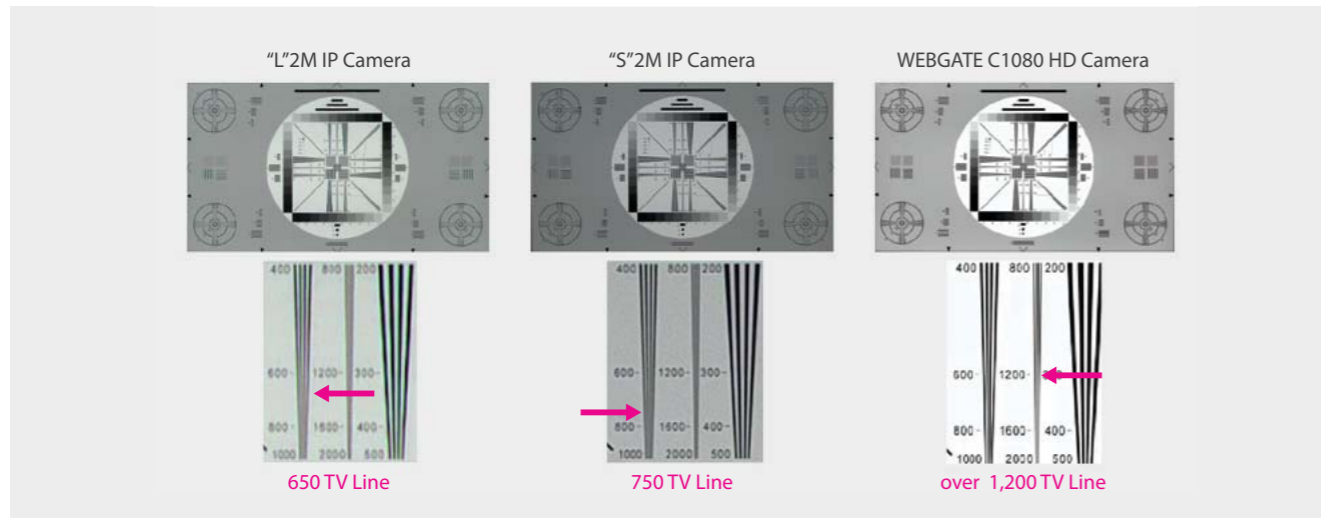
Progressive Screen

Since HD-SDI camera captures the images by progressive scan method, user can see the very clear image without video noise occurred by interlace scan method of SD camera. Like below pictures, HD-SDI camera's progressive scan method enables to get clear image even for moving object.

Progressive scan　　　Interace scan
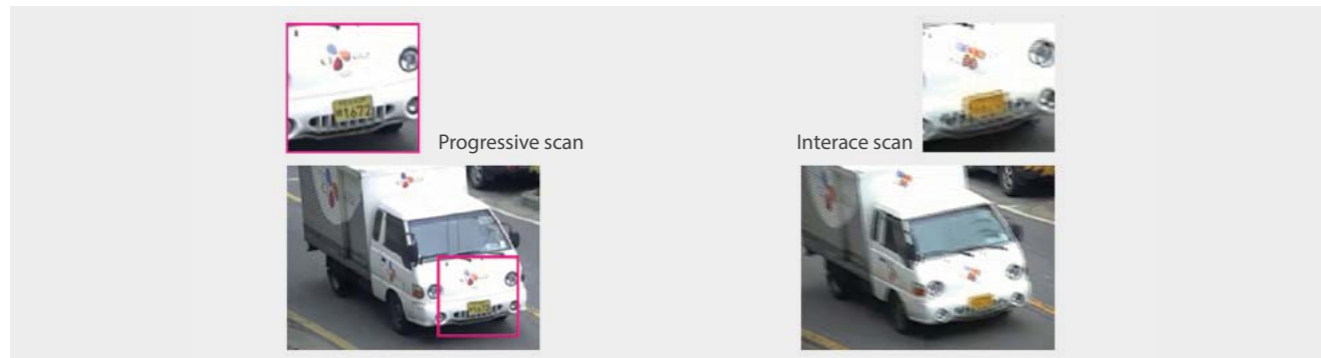
The effect of raising legibility

We compared 35x speed dome camera used in conventional CCTV to 20x HD-CCTV camera.

The picture of 20x Full-HD camera is more clear than 35x SD camera in same distance. This can be surely recognized if you look at the number plate. 20x Full-HD camera has the resolution of 49x SD camera and please refer to "Readability of Full HD & SD camera" for detailed information.


35x SD camera image

20x Full HD camera image

Plug & Play using Coaxial Cable

In case of HD-CCTV, the coaxial cable used in conventional CCTV can be reusable. The management of camera and DVR is very similar to that of SD products, so it can contribute to minimize the technical burden of conventional installer and manager of monitoring center. This is because HD-CCTV is relatively easier when it is compared with IP system which has product compatibility issue and difficult network configuration.
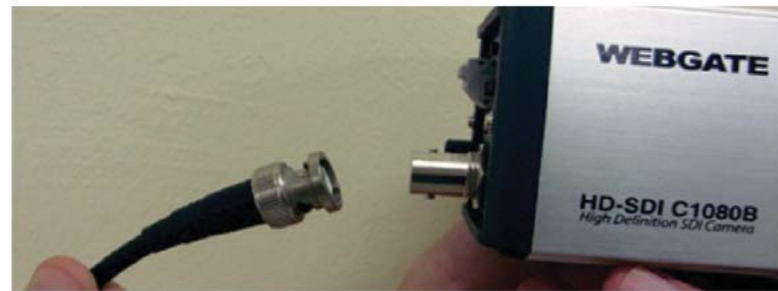
HD real time monitoring (Full Frame, No latency, No compression)

Because HD-SDI transmits video as digital data without compression, you can get the best video image without any quality degradation, and furthermore because there is no latency, you can control PTZ with real-time from control center. It means HD-SDI had overcome some restrictions of HD video introduction due to picture degradation and delay of IP solution.
The below picture shows the component of network system. IP camera includes delay caused by video compression and network transmission. Besides, NVR includes delay caused by network and video recovery. This will make the overall delay of total system, and this will decrease the completeness of the system such as you can see from PTZ control.
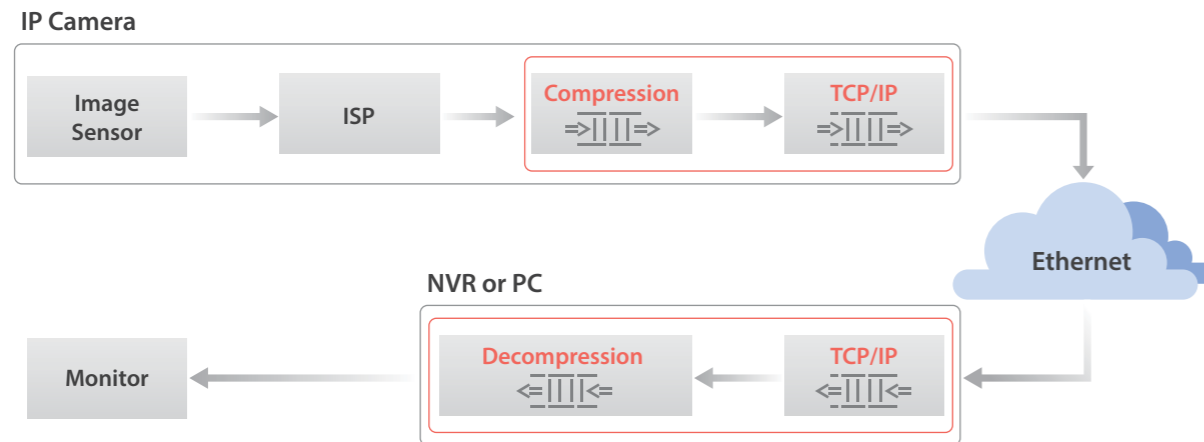
Trustworthy Channel (Video-only Channel)

It is possible to transmit and record video with no interference of network error because HD-CCTV is transmitting video through coaxial cable. The trustworthy of transmitting channel is one of the most core elements to secure trustworthy of security system.
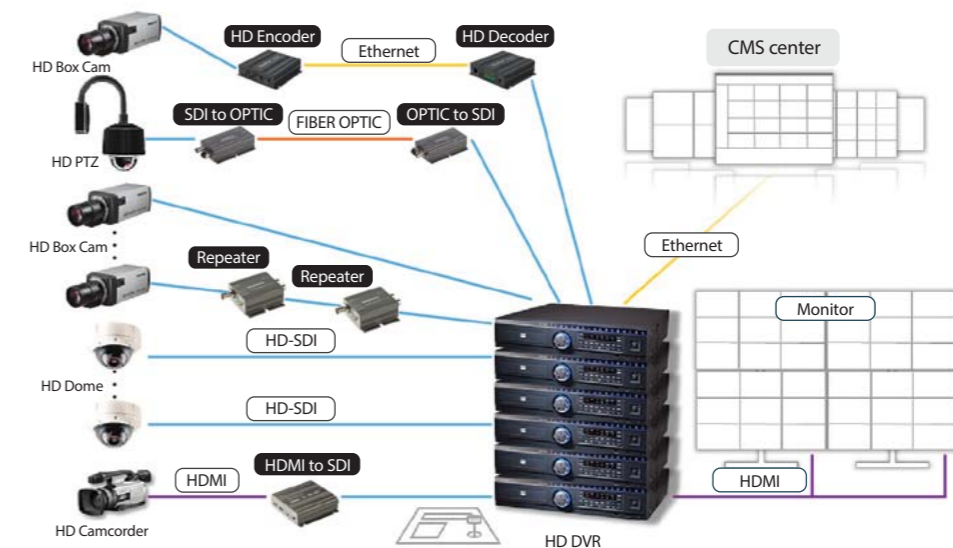
Easy Integrated Monitoring

The system using both HD-SDI camera and HD-SDI DVR can be easily integrated and installed into the conventional SD-CCTV. It is easy to use some channels as SD and some channels as HD together in the same monitoring system. This could be achieved more easily with the help of HD-SDI Hybrid DVR or SD-to-HD converter.
In addition, it is possible to integrate with IP network system and remotely access the system because HD-SDI DVR has the network feature.

Improved Camera reliability by low heat

Surveillance cameras can be installed indoor or outdoor. Sometimes HD-SDI cameras are installed under the environment where temperature is very high. HD-SDI cameras do not need H.264 compression or IP network feature, so the power consumption is relatively minimized than IP cameras, resulting minimization of performance degradation of camera, insuring the reliability.

Securing Compatibility among Equipment

The system using various HD-SDI camera and HD-SDI DVR can be easily integrated and installed like conventional SD-CCTV system. Various converters will offer easy connection among different type of devices if HD class video is converted into HD-SDI transmission method. This is superior to the IP camera system which makes compatibility problem among devices due to the different high-level protocol. Therefore, user can configure HD-CCTV system based on installation environment requirement by selecting various cameras and accessories regardless of manufacturers.
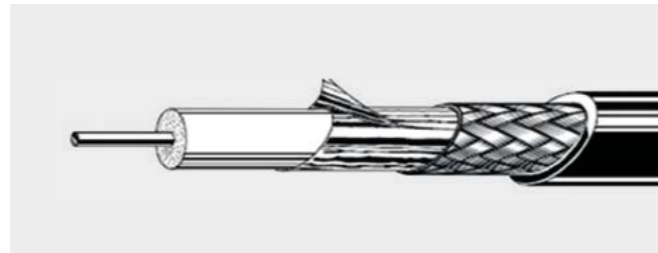
Features of HD-SDI signal

The transmission method of HD-SDI uses Bitrate 1.485Gbit/s of SDI(Serial Digital Interface) method as a standard of SMPTE 292M defined by SMPTE(Society of Motion Picture and Television Engineer). The transmission of HD-SDI uses high frequency of 750MHz due to large amount of data transferred per second. Compared to Analog video signal which uses less than 10MHz, it is over 75 times differences. The higher frequency means short wavelength of signal, and signal attenuation by distance will be increased. So, the most important part in HD-SDI transmission is to minimize decrease of signal. To minimize decrease of signal , user needs to select suitable coaxial cable for HD-SDI transmission.

Coaxial Cable

The coaxial cable consists of signal line with insulator surrounding signal line and shield(outer conductor). The signal line, metal, has resistance value and this resistance value can be separated as resistance, capacitance and reactance. From these 3 values characteristic impedance is decided, and there are 50ohm and 75ohm impedance in Coaxial cable.
Video cable has minimum attenuation at 75ohm characteristic impedance and can transfer signal farthest at that time.
External diameter of signal line, permittivity of insulator and external diameter of insulator are the elements to maintain 75ohm impedance.
Even though conventional Analog CCTV system consists of coaxial cable, user needs to check impedance of coaxial cable, quality of insulator, shielding method and impedance of cable connector to apply HD-CCTV system using HD-SDI.

75ohm Impedance

The picture shows Attenuation according to Characteristic Impedance, Power and Voltage. HD-SDI transmission signal is very low voltage and the most important part in the coaxial cable is signal decrease. If signal decrease is big, that means transmission distance becomes short. So, 75ohm characteristic impedance cable which shows minimum attenuation should be used.
In contrast to HD-SDI signal, 50ohm characteristic impedance coaxial cable is used in area of RF such as communication, measurement, antenna to deliver signal of higher voltage and current even though signal decrease is bit fallen behind.

Impedance in Ohms
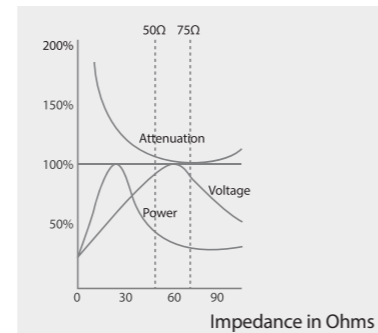
The main coaxial cable types and specifications

RG-type coaxial cable

RG-type coaxial cables include RG-59, RG-6, RG-58, RG-8, etc. following the American coaxial cable standard. RG-58, RG-8 is 50ohm coaxial cable and RG-59, RG-6 is 75ohm video coaxial cable. RG-59 means 4C high-foamed coaxial cable, and RG-6 means 5C high-foamed coaxial cable. /U means normal cable and /T means triple shielded cable.
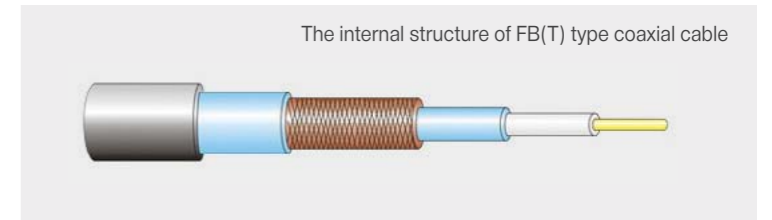
ECX-type coaxial cable

ECX-type coaxial cables include 3C-2V, 5C-2V, 7C-2V, 10C-2V etc., and they are defined in Korean domestic standard KSC 3610. They are solid polyethylene insulation type coaxial cable, and it is different from foamed insulation type ones. 3, 5, 7, and 10 means the outer diameter, C means 75ohm impedance, 2 means PE (polyethylene), and V means braided-shielding.

The internal structure of ECX type coaxial cable
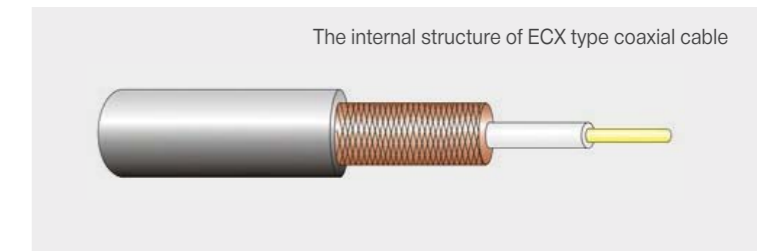
FB (T)-type coaxial cable

FB(T)-type coaxial cables include 3C-(H) FB (T), 4C-(H) FB (T), 7C-(H) FB (T), 10C-(H) FB (T) etc., and they are defined as foamed/high-foamed polyethylene insulation coaxial cable in Korean domestic standard KSC 3617. 3, 5, 7, and 10 means the outer diameter, C means 75ohm impedance, F means foamed PE insulation, B means braided-shielding, and T means triple shield. Especially, HF means high-foamed, but the expression is a little different according to manufacturers. In case of HD-SDI transmission, high-foamed insulation type is better than ECX type, and HFBT/FBT type's triple shielding shows better signal attenuation performance.
For reference, FB(T) type coaxial cable shows the most cost effective performance in HD-SDI transmission because it has high-foamed insulation and shielding as default suitable for high frequency. But, if the distance is short, every cable does not make problem. You may refer to the standard signal attenuation vs. frequency band table provided from cable manufacturers. You may think that HD-SDI signal could reach to the distance where the standard attenuation become 20dB at 750MHz (1/2 of 1.5GHz) frequency band.

The internal structure of FB(T) type coaxial cable

Selecting a Coaxial cable for HD-SDI (5C-HFBT)

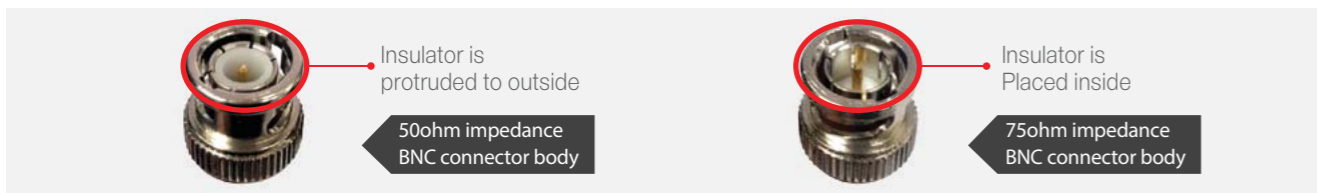To get stable HD-SDI video signal, selecting a cable is very important. WEBGATE is providing most suitable Coaxial cable, BNC connector and Cabling tools for our valuable customers.

Selecting a HD-SDI coaxial cable

[BNC cable termination]

Crimp Barrel
Braided shield
Foil shield
Center conductor
Center pin
BNC connector
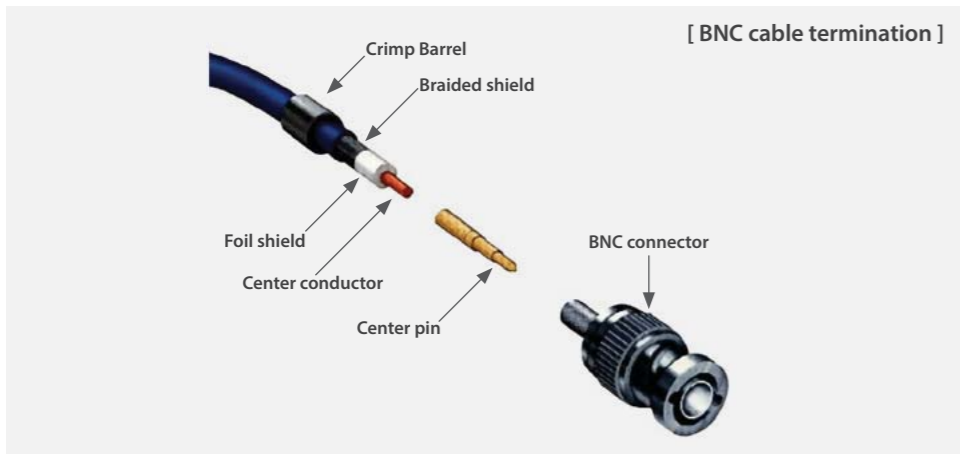
- When selecting 5C-HFBT coaxial cable, its center conductor must be composed of annealed copper.
  There are 2 kinds of center conductor. The first one is made of copper, and the other one is copper covered steel.
- Signal transmission distance of 5C-HFBT cable can be judged by resistance of center conductor.
  (Refer to below 5C-HFBT cable performance table)
- BNC connector must have 75ohm impedance. (if used 50ohm's one, transmission distance will be decreased around 10~20m)
- Crimping type center conductor can be easily used for assembly.

Comparison of 50ohm and 75ohm BNC Connector

Insulator is protruded to outside

50ohm impedance BNC connector body

Insulator is Placed inside

75ohm impedance BNC connector body

5C-HFBT cable performance

Manufacturer	Spec	Distance	Center conductor	Braided shield
"A"	5C-HFBT(HD-SDI)	220m	4.3 ohm/200m	6 ohm/200m
"B"	5C-HFBT	210m	19 ohm/200m	6 ohm/200m
"C"	5C-HFBT	140m	26 ohm/200m	6 ohm/200m

· If 50ohm BNC connector is used, transmission distance is decreased 10~20m
· Superiority of "A" company product
  - Center Conductor : "A" company uses annealed copper, but the other companies use copper covered steel
  - Braided shield : "A" company uses 0.13mm, but the other company use 0.09mm

5C-HFBT product type

Manufacturer	Spec	Center conductor
"A "	5C-HFBT	There are 3 kinds of cable by braid shield
"B"	5C-HFBT	One 5C-HFBT product
"C"	5C-HFBT	One 5C-HFBT product

- WEBGATE is supplying "A" company's 5C-HFBT coaxial cable.

Transmission distance of several cables

Cable	Distance	Remark
5C-HFBT	Approx. 220m	- Center conductor made by annealed copper shows better performance than copper covered stee - Braided shield affects to transmission distance
4C-HFBT	Approx. 150m	
5C-2V	Approx. 100m	
3C-2V	Approx. 90m	

Introduction of cabling tools

[Cable Stripper HT-332]   [BNC Crimping Tool]   [5C BNC PLUG]   [5C-HFBT 케이블]
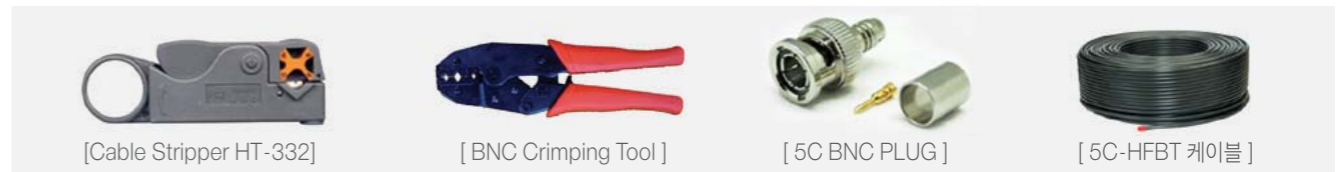
※ Regarding purchase of Coaxial cable, BNC connector, Cabling tools, WEBGATE is waiting for your inquiry.

HD-SDI signal extension

Maximum HD-SDI transmission distance is almost decided according to the type of coaxial cable as shown in the table below. If you want to lengthen the distance, you may use higher rating cable which has lower signal attenuation or use HD-SDI repeater or adopt fiber-optic converter for long distance.

Repeater / PoC Repeater

HD-SDI repeater has equalizer function to compensate and recover video signals attenuated. HD-SDI repeater is used for extend the transmission distance. PoC(Power over Coax) is a repeater which supplies power via coaxial cable. If used PoC repeater, it does not need to supply power into the repeaters which are connected in the middle of line. According to the cable type, maximum number of PoC repeater is different.

Camera RP102 RP102 RP102 RP102

[Repeater]

Camera PoC Repeater PoC Repeater PoC Repeater PoC Repeater
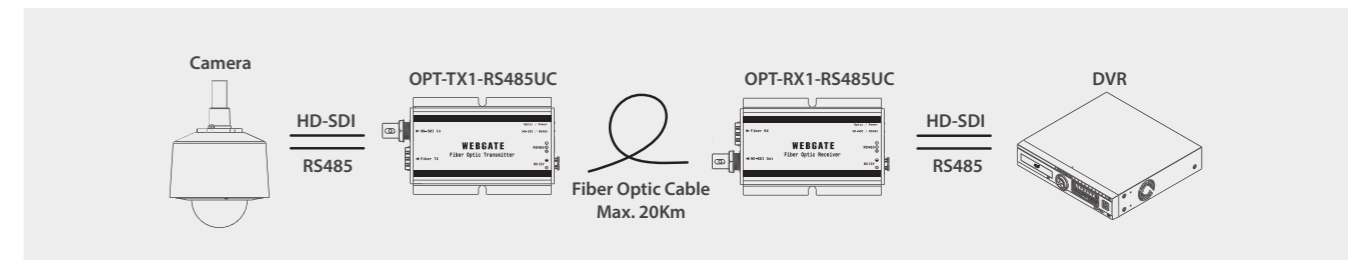
[PoC Repeater]
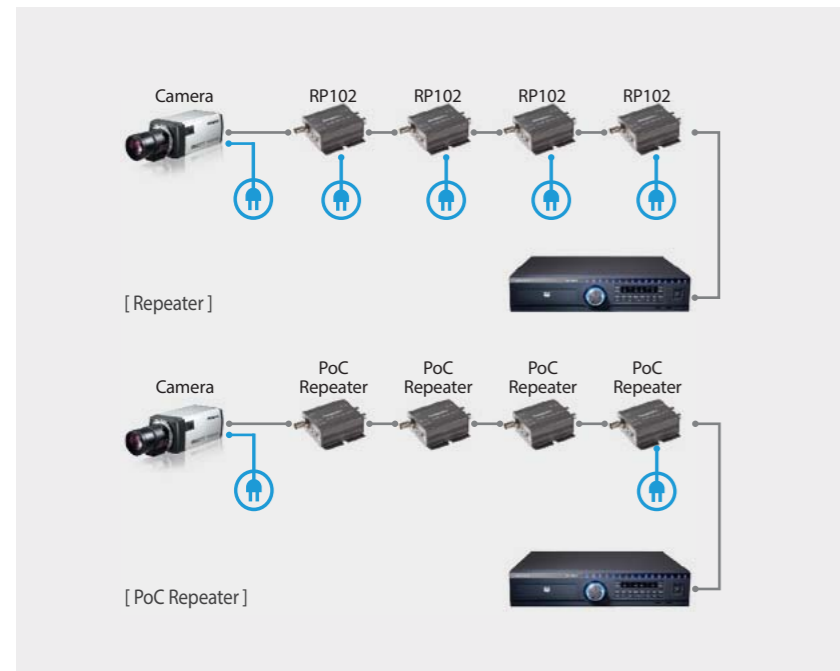
Fiber Optic converter (HD-SDI fiber optic transmission)

In order to make up for the weakness and to reduce transmission loss and to extend transmission distance to dozens of Km, fiber-optic transmitter is in use. The advantages are as follows. installation is easy due to thin cable, and although HD-SDI video can be transmitted around 100~300m using normal coaxial cable, but it can be transmitted up to dozen of Km by fiber-optic cable. Moreover, normal coaxial cable is easy to be affected by EMI, RFI noise, but fiber-optic cable is not affected by these electromagnetic noises, and if used multiplex transmission, several data can be transmitted through one fiber-optic cable.

HD-SDI Speed Dome

OPT-TX1-RS485UC
HD-SDI
OPTIC
20 Km
OPT-TX1-RS485UC
HD-SDI

Guide for Fiber-Optic Converter (OPT-TX/RX Series)

Installation configuration

Camera OPT-TX1-RS485UC OPT-RX1-RS485UC DVR
HD-SDI
RS485
WEBGATE Fiber Optic Transmitter
Fiber Optic Cable Max. 20Km
WEBGATE Fiber Optic Receiver
HD-SDI
RS485

Optical Cable and Connector

[Optical Cable] [Optical Connector] [Optical cable connection]

Transmission distance of HD-SDI signal

Cable type	Distance	Transmission signal
Single-mode optical cable	Max. 20Km	HD-SDI 1080p + RS485
Multi-mode optical cable	Max. 1Km	HD-SDI 1080p + RS485

OPT-TX/RX Series support only LC type connector
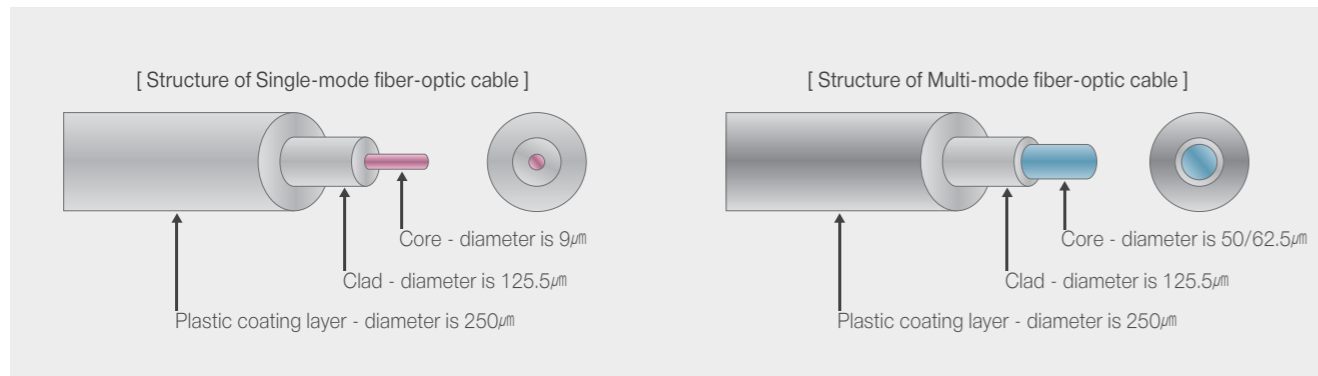
Single-mode or Multi-mode cable can be used depending on transmission distance

Optical cable and Connector type

1) Optical cable types and specifications

Optic cable or Optic jumper code can be divided into 2 types.

① Single mode cable : Core diameter is about 9μm, which is being used for wideband, long distance and it can make repeaterless transmission up to 50km. In case of small-size core diameter single-mode cable, the cable path is narrow so it is hard to deliver large amount information, but is possible to deliver information far away. The cable jacket color normally uses Yellow color.

② Multi mode cable : Core diameter is 50~100μm, which is being used for short distance. In case of big-size core diameter multi-mode cable, the cable path is wide so it can deliver large amount information. The cable jacket color normally uses Orange color.

[Structure of Single-mode fiber-optic cable]

Core - diameter is 9μm
Clad - diameter is 125.5μm
Plastic coating layer - diameter is 250μm

[Structure of Multi-mode fiber-optic cable]

Core - diameter is 50/62.5μm
Clad - diameter is 125.5μm
Plastic coating layer - diameter is 250μm

Item	Single-mode fiber-optic cable	Multi-mode fiber-optic cable
Applying Field	- Use for 1310/1550nm wavelength signal - Long distance repeaterless transmission - Data transmission cable - Long distance transmission - CATV cable	- Use for 850/1300nm wavelength signal - Short distance transmission - Optical cable for LAN - Optical cable for data - Optical cable for distribution
Features	- Internal core diameter is 9μm - Uniform optical characteristics and low-loss - Strong for micro banding - Superior compatibility with external devices	- Internal core diameter is 50μm, 62.5μm - Double-coating type

2) Connector types of optic cable

OPT-TX/RX Series support LC type Connector

LC

SC
ST
MTRJ
FDDI(MIC)

BIOCONIC
FC
MU
FJ45
VF45

Legibility of HD-SDI zoom camera (vs. analog camera)

To get the optical performance of lens, we may simply compare the focal-length of lenses. But, it is somewhat risky to judge the zoom performance only based on the zoom magnification which is calculated by the focal-length ratio of Tele-end and Wide-end. Several factors like resolution of lens itself and light transmittance affect the actual legibility of zoom camera.
In the following case, zoom performance of two 35x and 37x camera is almost same, but actually 35x zoom camera will show better zoom performance. In other words, the higher zoom magnification does not mean the better legibility.

· Camera A : 35x optical zoom (f=3.4 ~ 119mm)
· Camera B : 37x optical zoom (f=3.2 ~ 118.4mm)

Many conventional zoom camera and speed dome customers had been judged zoom performance based on focal-length at Tele-End, and zoom magnification. But, if we compare the HD-CCTV camera with conventional analog camera, we need more deep study. Because HD-CCTV camera has much higher resolution than analog camera, it is not suitable only to use lens magnification to compare the legibility between the videos.

Legibility comparison between analog and HD-CCTV camera based on resolution

You may consider 20x HD-CCTV camera may have lower legibility if it compared with 35x analog camera because it has lower zoom magnification, but it it not true. Because HD-CCTV camera is using 2 megapixel image sensor, it provides much greater information than analog camera which uses 410Kpixel image sensor. Moreover, HD-CCTV is using digital video transmission method so, it prevents the drop of video quality during transmission, and it keeps relatively higher legibility.
More technically, let's compare the pixel quantity between HD-CCTV camera and analog camera. NTSC video can be converted to digital video, and its maximum size is as follows.

· Resolution of HD-CCTV camera   : 1920 x 1080 = 2,073,600 pixels (HD1080p)
· Resolution of Analog camera   : 720 x 480 = 345,600 pixels (NTSC)

Therefore, HD-CCTV's total pixel is exactly 6 times bigger than analog's one. Because $\sqrt{6}=2.45$, it means HD-CCTV camera has same effect as using a zoom lens which has 2.45 times better performance compared to an analog camera.

Zoom performance comparison using actual cameras

If we compare the legibility among cameras through the formula of "Focal-length at Tele-end x Resolution Factor = Virtual focal-length at tele-end"

Camera1
Analog 35x zoom camera (410K pixels, 720 x 480)
Focal length : 3.4mm ~ 119mm
119mm x 1 = 119mm

Camera2
HD-CCTV 18x zoom camera (720p, 1,280 x 720)
Focal length : 4.7mm ~ 84.6mm
84.6mm x 1.63 = 137.9mm

Camera3
HD-CCTV 20x zoom camera (1080p, 1920 x 1080)
Focal length : 4.7mm ~ 94mm
94mm x 2.45 = 230.3mm

From the above results, camera 2 shows similar legibility to 29x (137.9mm/4.7mm), analog zoom camera, and camera 3 shows similar legibility to 49x (230.3mm/4.7mm) analog zoom camera. In other words, judging the zoom performance of HD-SDI and analog camera by simply their zoom magnification may bring wrong result.
That is, even through camera's "Focal length at Tele-End" is same, the actual legibility shows difference according to camera's resolution.

Status of HDcctv alliance

Founded in 2009, HDcctv Alliance(www.highdefcctv.org) is developing the HD-SDI standard based on SMPTE standard. Their purpose is functional and performance standardization for speedy HD-SDI market expansion, so it adds new items to ensure the performance or restricts items suitable for surveillance market. Approx. 50 companies all over the world is joining this alliance and closely working with the alliance. Below picture shows the company logos that joined and working with HDcctv Alliance at present. It includes diverse companies like chipset provider, DVR and camera manufacturers from various countries of the world.

Guarantee of product compatibility and transmission performance

HDcctv Alliance is developing the HD-SDI standard, and this standard includes video, physical layer, meta data, etc. which are using between HD-SDI Tx/Rx equipment. Especially, they are standardizing the performance, compatibility requirements that are necessary for surveillance camera, DVR, monitor, and repeater, and its purpose is fast market expansion of HD-SDI products in surveillance market. For example, because still image is as very important as video in surveillance market, they do not allow interlace scan method that makes quality degradation of still image and only allow progressive scanning method.
HDcctv Alliance is clearly providing the HD-SDI's minimum requirements for performance, standardizing the compatibility between equipment, ensuring product performance for the expansion and settlement of the HD-CCTV market.

Standardization (differences from SMPTE)

HDcctv Alliance and SMPTE made a license agreement in year 2009, and the HDcctv standard was derived from SMPTE-292M. Because HD-SDI is already proven technology in broadcasting market, it did not need a separate standard. However, in contrast to the relatively small and high cost of broadcasting equipment market, large and price-sensitive surveillance market needs further standardization of electrical function, performance and the compatibility between diverse equipment. HDcctv standard requests the plug and play regardless of device's features, nation, price and it provides their test methods in certification process.
Below table shows the differences between SMPTE and HDcctv standard. HD-CCTV adopted 1.485Gbps, 1080p30 HD-SDI transmission method due to the compatibility between equipment and importance of still image. Additionally, the transmission distance is one of the main issues, it requests strict signal quality of equipment. HDcctv is still working for improvement of transmission distance, communication between equipment and adding PoC function for easy installation.

		SMPTE	HDcctv V1.0
Video Format	Physical Layer	SD-SDI, HD-SDI, 3G-SDI	HD-SDI
	Max bit rate	up to 1080p60	up to 1080p30
	Scanning	progressive, interlace	progressive
Signal Performance	Signal Loss(dB)	〈 typically 20dB	〈 36dB@L-4CFB
	Bit error	Not defined	No error when 150m@RG59
Future Spec.	eXtend Reach	Not defined	will be released at HDcctv XR
	Bi-directional control	Not defined	will be released at HDcctv V2.0
	Power over Coax	Not defined	will be released later
Etc	Certification Process	Not defined	O

Leadership Award for 3 years in a row

WEBGATE won the HDcctv Leadership Award for 3 consecutive years from 2011 to 2013.

This award means that HD-CCTV market has recognized WEBGATE's tireless new product development, the effort to spread significant system installation cases, holding customer seminars.

Also, this proves that WEBGATE is the leading manufacturer driving the HD-CCTV market in the world.

2011

2012

2013

WEBGATE's HDcctv certificates

Since receiving the world's first HDcctv camera certificate in 2010, WEBGATE has acquired total of 45 certificates for DVR, camera and converter products.

Especially, WEBGATE acquired HDcctv certifications for PoC cameras on October in 2013, and acquired the world's first certifications for PoC DVR models also. It is truly a defining moment for HD-CCTV industry. Because it directs the future of "One Cable Solution" using HD-SDI products.

WEBGATE is holding total 45 HDcctv certificates and it is top among HDcctv members (Based January 2014). Also, keep designing high quality products satisfying fussy HDcctv Alliance standard.

· DVR Products – Total 13 certificates

· Camera Products – Total 25 certificates

· Converter Products – Total 7 certificates

WEBGATE's Vision

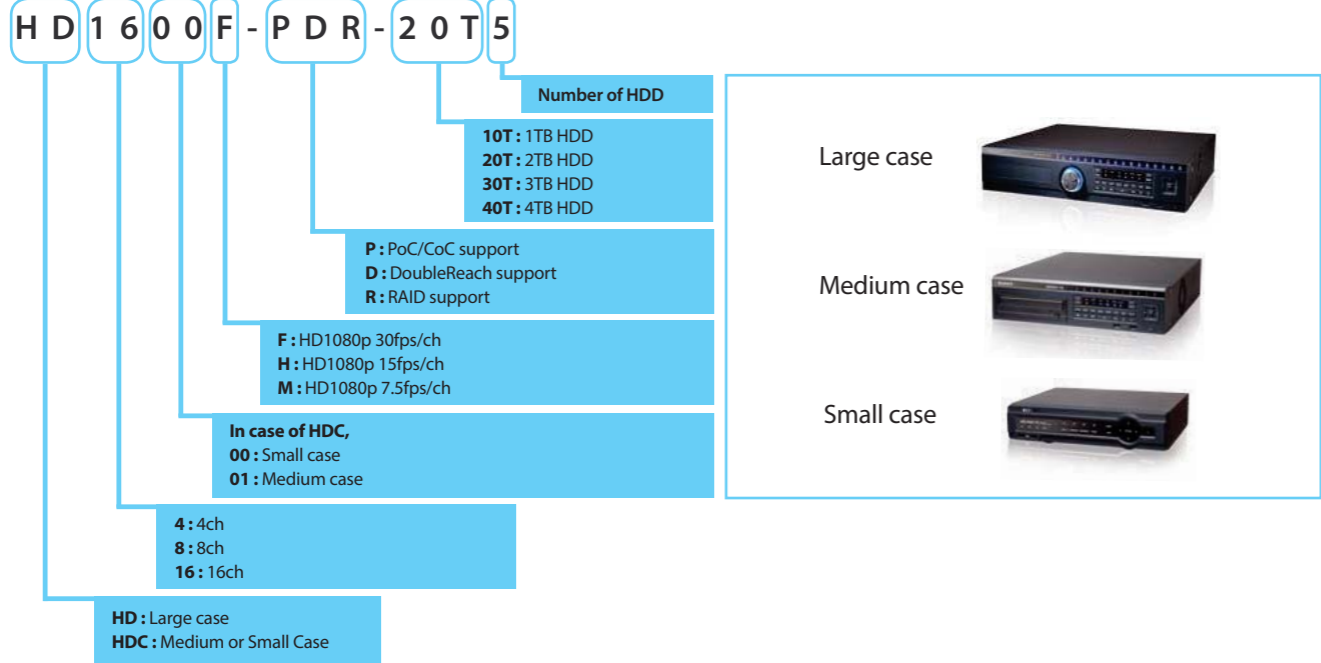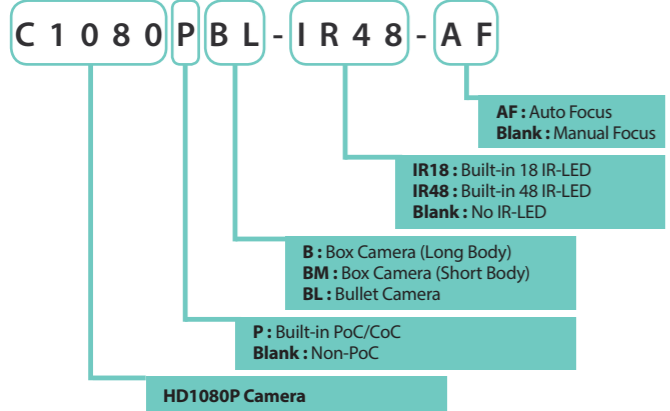Established in 1997, Daemyung Enterprise Co., Ltd. WEBGATE division, has been continuously tried to keep the promise of providing the best and the most innovative products in the world of security. With a world-class technology and highly reliable products, WEBGATE is currently leading the world of security market.

We will always keep the promise to meet the changes in the market and provide you the best.

Ordering **Information**

HD-SDI DVR

H D 1 6 0 0 F - P D R - 2 0 T 5

Number of HDD

10T : 1TB HDD
20T : 2TB HDD
30T : 3TB HDD
40T : 4TB HDD

P : PoC/CoC support
D : DoubleReach support
R : RAID support

F : HD1080p 30fps/ch
H : HD1080p 15fps/ch
M : HD1080p 7.5fps/ch

In case of HDC,
00 : Small case
01 : Medium case

4 : 4ch
8 : 8ch
16 : 16ch

HD : Large case
HDC : Medium or Small Case

Large case

Medium case

Small case

HD-SDI Box & Bullet Camera

C 1 0 8 0 P B L - I R 4 8 - A F

AF : Auto Focus
Blank : Manual Focus

IR18 : Built-in 18 IR-LED
IR48 : Built-in 48 IR-LED
Blank : No IR-LED

B : Box Camera (Long Body)
BM : Box Camera (Short Body)
BL : Bullet Camera

P : Built-in PoC/CoC
Blank : Non-PoC

HD1080P Camera

HD-SDI Dome Camera

C 1 0 8 0 P V D - I R - A F

AF : Auto Focus
Blank : Manual Focus

IR : Built-in 24 IR-LED
Blank : No IR-LED

D : Plastic Dome
VD : Vandal Dome

P : Built-in PoC/CoC
Blank : Non-PoC/CoC

HD1080P Camera

WEBGATE

Premuim to your security