WISENET

NETWORK VIDEO RECORDER

Product Specification Manual

WRN-1610S/WRN-810S

CE

Network Video Recorder
Product Specification Manual

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❖ **Design and specifications are subject to change without prior notice.**
You can download the latest version from the Hanwha Techwin web site. (www.hanwha-security.com)

❖ **The initial administrator ID is "admin" and the password should be set when logging in for the first time.**
Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.
Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit.
Follow all the safety instructions listed below.
Keep these operating instructions handy for future reference.

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth. (Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
7) Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding- type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. if the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Standards Approvals

- Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
  This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

BEFORE START

This manual provides operational information necessary for using the product and contains a description about each component part and its function as well as menu or network settings.
You have to keep in mind the following notices :

- Hanwha Techwin retains the copyright on this manual.
- This manual cannot be copied without Hanwha Techwin's prior written approval.
- We are not liable for any or all losses to the product incurred by your use of non-standard product or violation of instructions mentioned in this manual.
- Prior to opening the case, please consult a qualified technician first. Whenever this is needed power must be removed from the unit.
- Before adding a hard disk drive or external storage (USB memory, USB HDD, etc), check if it is compliant with this product. For the compatibility list, contact the retailer.

Warning

Battery

It is essential that when changing the battery in the unit, the replacement battery must be of the same type otherwise there may be a possibility of an explosion.

The following are the specifications of the battery you are using now.

- Normal voltage : 3V
- Normal capacity : 220mAh
- Continuous standard load : Max. 0.4mA
- Operating temperature : -30°C ~ +60°C (-22°F ~ +140°F)

CALIFORNIA USA ONLY
This Perchlorate warning applies only to primary CR (Manganese Dioxide) Lithium coin cells in the product sold or distributed ONLY in California USA.
"Perchlorate Material - special handling may apply,
See www.dtsc.ca.gov/hazardouswaste/perchlorate."

Caution

- Connect the power cord into a grounded outlet.
- The Mains plug is used as a disconnect device and shall stay readily operable at any time.
- Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.
- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- When the HDD reaches its end of life, the stored video data may be damaged, and not be able to be recovered.
- The HDD status LED on the front of the system continuously blinks to indicate that the system's connection to the HDD is normal. Check the HDD status LED regularly to see if it blinks continuously. Recording may not be possible when there is an HDD failure.
  Periodically check the recording status and backup important data regularly.

ATTENTION

- IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.
  METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

System Shutdown

Turning off the power while the product is in operation, or undertaking improper actions may cause damage or malfunction to the hard drive or the product.
To safely power off, select the Power icon in the upper right corner of the desktop, then select the Power icon again in the drop menu, then select on Power Off in the following pop-up menu. Once the screen turns black after the Ubuntu splash screen, it is safe to power off the switch in the rear of the chassis and unplug the power cable.
You may want to install a UPS system for safe operation in order to prevent damage caused by an unexpected power stoppage. (Any questions concerning UPS, consult your UPS retailer.)

- If powered off abnormally, restarting may take more time for restoring data from hard disk drive for proper operation.

Operating Temperature

The guaranteed operating temperature range of this product is 0°C ~ 40°C (32°F ~ 104°F).
This product may not work properly if you run right after a long period of storage at a temperature below the guaranteed one.
Prior to using a device that has been stored for a long period in low temperatures, allow the product to stand at room temperature for a period.
Especially for the built-in HDD in the product, its guaranteed temperature range is 5°C ~ 55°C (41°F ~ 131°F). Likewise, the hard drive may not work at a temperature below the guaranteed one.

Ethernet Port

This equipment is for indoor use and all communication wirings should be limited to the inside of the building.

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FEATURES

The product records video and audio from network cameras to a hard disk, and enables playback from the hard disk.
It also provides remote monitoring environment for video and audio over the network using a remote computer.

Package Contents

Please unwrap the product, and place the product on a flat place or in the place to be installed.
Please check the following contents are included in addition to the main unit.

- The appearance of the components may differ from the image shown.
- Accessory category and quantity may differ depending on sales region.
- For some regions, HDD is not pre-installed. HDD Fixing Screw, SATA Power Cable, SATA data cable and SATA power/data cable quantity vary depending on the model.

WRN-1610S

NVR	Mouse	Power Cable
Bracket Rack	Product Specification	Terminal block
HDD Fixing Screw (16ea)	Bracket Fixing Screw (4ea)	SATA Power cable
SATA Data cable	M.2 card Fixing Screw (1ea)	

WRN-810S

NVR	Mouse	Power Cable
Bracket Rack	Product Specification	Terminal block
HDD Fixing Screw (8ea)	Bracket Fixing Screw (4ea)	SATA Power cable
SATA Data cable	M.2 card Fixing Screw (1ea)	

PART NAMES AND FUNCTIONS (FRONT)

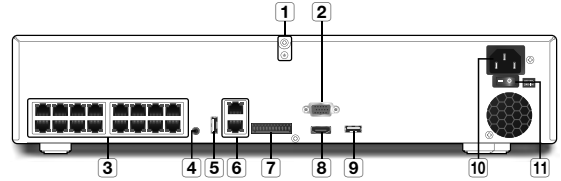
WRN-1610S

WRN-810S

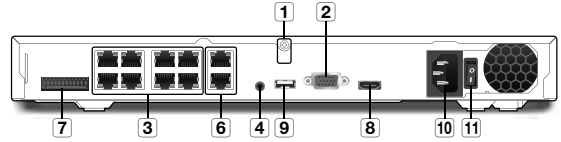
Part Names		Functions
1	LED Indicator	**REC** : Lights on when recording is in progress.
		HDD : Displays the normal access to HDD. LED turns on when accessing the hard disk.
		ALARM : Lights on when an event occurs.
		NETWORK : Displays both network connection and data transfer status.
		PoE OVER : LED will be turned on if PoE power exceeds 200 W/100 W (WRN-1610S/WRN-810S).
		POWER : Shows the power ON/OFF status.
2	USB	Connects the USB devices. (USB 2.0 supported)

PART NAMES AND FUNCTIONS (REAR)

WRN-1610S



WRN-810S



Part Names		Functions
1	Ground connection	Terminal to connect a separate ground cable. ▪ Add a ground cable to support the safe use of the device.
2	VGA OUT	VGA Video Signal Output Port.
3	PoE (CAMERA)	Power supply port to connect to a camera.
4	AUDIO OUT	Audio Signal Output Port (Stereo jack).
5	USB	Connects the USB devices. (USB 2.0)
6	NETWORK1	Port recommended for camera connection, which receives an image from the camera. (USB Ethernet - UBUNTU)
	NETWORK2	Port recommended for connection with a network. (PCI Ethernet - UBUNTU)
7	ALARM	- ALARM IN : Alarm input ports. (1~4 CH) - ALARM OUT : Alarm output ports. (1~2 CH)
8	HDMI	HDMI connector port.
9	USB 3.0	Connects the USB devices. (USB 3.0 supported)
10	Power	Terminal to connect power to.
11	Power Switch	Power on/off switch.

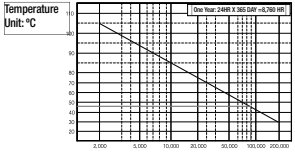
Please take note of the followings before using this product.

- Do not use the product outdoor.
- Do not spill water or liquid in the connection part of the product.
- Do not impose the system to excessive shock or force.
- Do not pull out the power plug forcefully.
- Do not disassemble the product on your own.
- Do not exceed the rated input/output range.
- Use a certified power cord only.
- For the product with an input ground, use a grounded power plug.

CHECKING THE INSTALLATION ENVIRONMENT

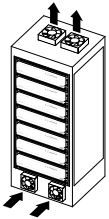
This product is a top-notch security device that is equipped with a high-capacity HDD and other key circuit boards.

Note that an excessive internal temperature of the product may cause a system failure or a shortened product life (see the right figure). Keep in mind the following instructions before installing the product.



[Figure 1]

When mounting the product on a rack, comply with the following instructions.



1. Please ensure that the rack inside is not sealed.
2. Please ensure the air is circulated through the inlet/outlet as shown in the picture.
3. If you pile up the prudcts or other rack-mount devices as shown in figure 2, secure room for ventilation or install a vent.
4. For natural air convection, place the inlet at the bottom of the rack and the outlet on top.
5. It is strongly recommended that a fan motor is installed at the inlet and the outlet for air circulation. (Please fit a filter at the inlet to screen dust or foreign substances.)
6. Please maintain the temperature inside the rack or surrounding areas between 0°C ~ 40°C (32°F ~ 104°F) as shown in the figure 1.

[Figure 2]

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions :

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

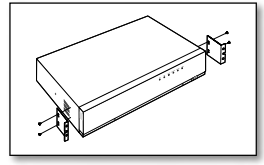
D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

RACK INSTALLATION

Install the Bracket-Rack as shown in the figure, and then fasten the screws on both sides.

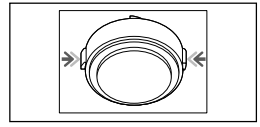
- Fix the screws not to be loosened by vibrations.



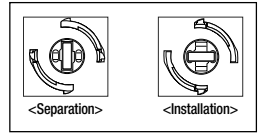
Cautions when Installing in the Rack

To install multiple NVRs in the rack, make sure to separate the FOOT at the bottom of each NVR.

1. There are four FOOTs at the bottom of a NVR. Press the projected parts at both-ends of each "**FOOT**" and turn it counterclockwise.



2. "**FOOT**" is separated from the main body when it is turned to the end of fastening groove.



HDD ADDITION

Make sure to unplug the power cord from the wall outlet to prevent possible electric shock, injury or product damage.
Please consult your provider for further information on HDD installation since improper installation or settings may damage the product.

- Number of HDDs supported : Up to 4 HDDs supported (WRN-1610S)
  Up to 2 HDDs supported (WRN-810S)
- Make sure to unplug the power cord from the wall outlet before proceeding with the installation.

- **Cautions for data loss (HDD care)**
  Please pay attention so that the data inside the HDD is not damaged.
  Before adding a HDD, please check the compatibility with this product.
  HDD is vulnerable to malfunction due to its sensitive nature especially against shock when operating.
  Please ensure that the HDD is free from such shock.
  We are not liable for any damage to the HDD incurred by user's carelessness or miss use.
- **Cases might cause damage to HDD or recorded data**
  To minimize the risk of data loss from a damaged HDD, please backup data as often as possible.
  If exposed to shock when disassembling or installing, data stored in the hard disk may be damaged.
  A sudden power failure or turning off the product while in HDD operation may damage the hard disk drive.
  HDD or files stored inside may be damaged if the main body is moved or impacted during the HDD operation.

Cautions when installing a HDD

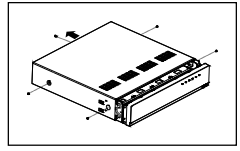
1. Do not apply excessive force to the HDD.
2. Pay attention so as not to lose the disassembly screws or accessories.
   - If the screws or accessories are not put together correctly, the product may breakdown or not operate properly.
3. Please check the HDD compatibility before adding a HDD.
   - Please contact your nearest dealer to obtain the list of compatible devices.

Installing the HDD

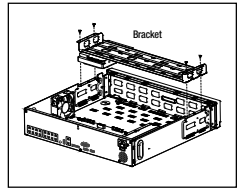
- If you are adding a new or previously used HDD to this product in addition to the HDD(s) originally installed, format the new HDD manually in the set before use.

How to install an HDD in WRN-1610S

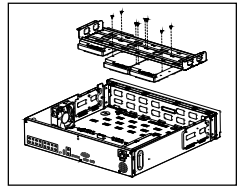
1. First, loosen the screws on the left/right sides and the rear side, and remove the cover.



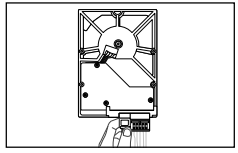
2. Loosen the screws on the left/right side (4 screws) and remove the bracket.



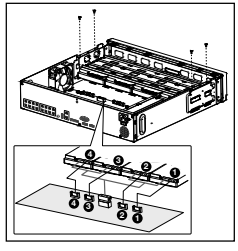
3. Mount an HDD to the bracket and fix it with screws.



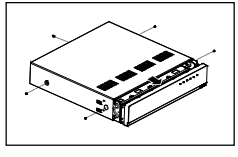
4. Connect the cable to the HDD by matching the HDD SATA/power cable number to the HDD position number on the bracket.
   - For the HDD location number on the bracket, please refer to the figure below.



5. Mount the bracket on which an additional HDD is mounted on the NVR, secure it with screws and connect the SATA/power cable to the connector on the main board by matching the number.
   - For the connector numbers, please refer to the figure below.

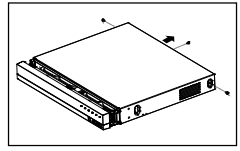


6. After ensuring that there is no problem with the connection terminal and routing inside the product, close and secure the cover using the screws.



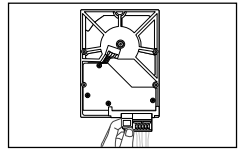
How to install an HDD in WRN-810S

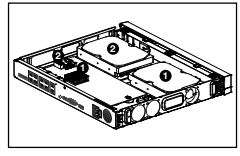
1. First, loosen the screws on the left/right sides and the rear side, and remove the cover.



2. After connecting one end of the HDD power and data cable to the HDD, connect the other end to the connector on the main board.
   - See the images for the HDD location number and connect number of the bracket.

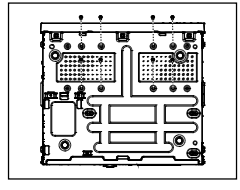
   - Gently press the connector before removing the HDD. Do not force to pull the cable.



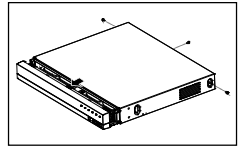


3. Using the provided screws, mount the HDD to the bottom cover.

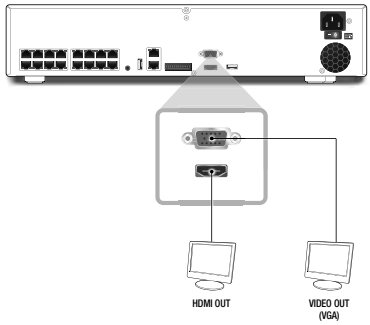
   - Up to two HDDs can be installed. The number of installable HDDs varies for each model.



4. After ensuring that there is no problem with the connection terminal and routing inside the product, close and secure the cover using the screws.



CONNECTING TO AN EXTERNAL DEVICE

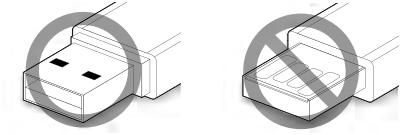


- Unrated or improper power source may cause damage to the system. Ensure that you use only the rated power source before pressing the POWER button.

CONNECTING THE USB

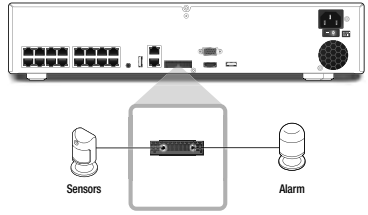
1. On the front of the product, there is a USB port.
2. You can connect a USB HDD, USB memory or mouse to the USB port.
3. If your USB HDD is connected to the system, it can be detected.
4. The product supports hot plugging function that enables connecting/disconnecting USB devices while in operating the system.

- If you use the USB device for Backup purposes, format it with FAT32 on PC if it is not formatted on the NVR.
- Some USB devices may fail to function properly due to compatibility issue, please check the device before using.
- Only USB storage devices that comply with the standards (having a metal cover) are guaranteed for data transfer.
- In case if the USB device's electric contacts have been worn out, data transfer between the devices may not properly function.

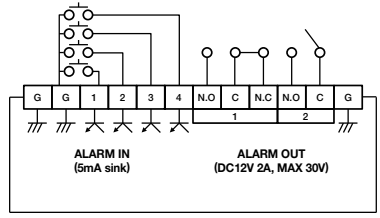


CONNECTING THE ALARM INPUT/OUTPUT

The Alarm In/Out port at the back is composed of the following.

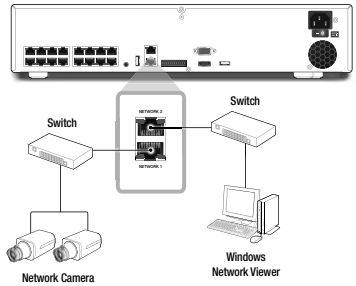


- ALARM IN 1 ~ 4 : Alarm Input Port
- ALARM OUT 1 ~ 2 : Alarm Output Port

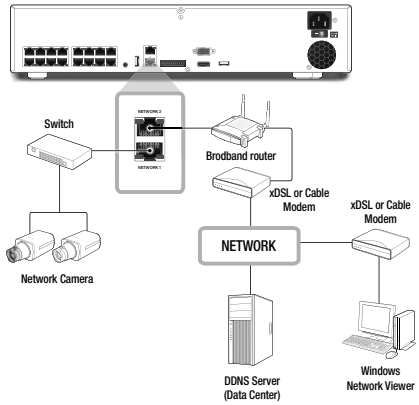


CONNECTING THE NETWORK

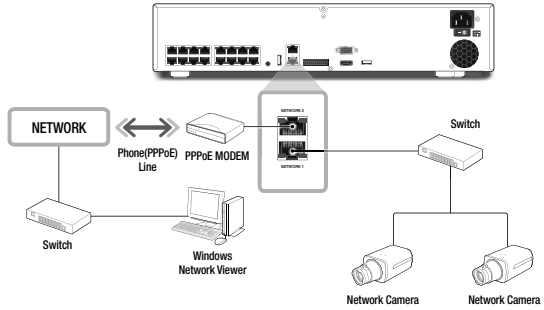
Network connection via Ethernet (10/100/1000BaseT)



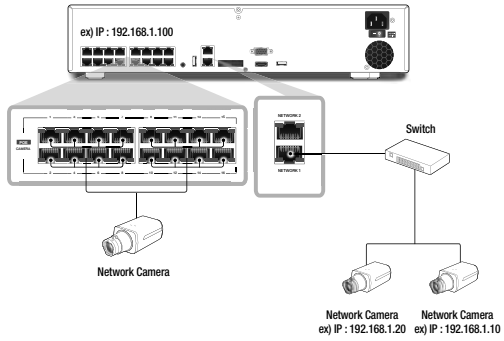
Network connection via router



Connecting to Internet through PPPoE



Connecting the network cameras



PRODUCT SPECIFICATION

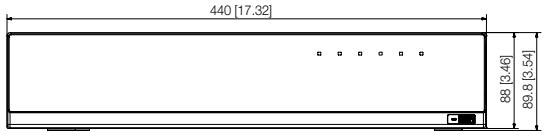
Item		Details	
		WRN-1610S	WRN-810S
Display			
Network Camera	Inputs	Max. 16ch (16 PoE, RJ-45)	Max. 8ch (8 PoE, RJ-45)
Live	Local Display	1x HDMI / 1x VGA	
Performance			
Operating System	Embedded	UBUNTU	
Storage	Built-In	0TB ~ 6TB	
	Internal HDD	4 SATA - Max. 24TB (6TB x 4EA)	2 SATA - Max. 12TB (6TB x 2EA)
Sensor	I/O	4/2	
Network			
Interface		RJ-45 (1000BASE-T * 2EA, PoE 100BASE-TX * 16EA)	RJ-45 (1000BASE-T * 2EA, PoE 100BASE-TX * 8EA)
Functions			
System Control		Mouse, Keyboard	
Indicator/Interface			
Front	Indicator	LED(Status indicator) : 6EA - Power 1, Alarm 1, HDD 1, Network 1, Record 1, PoE OVER 1	
	Audio	Stereo Jack (Left-Right)	
	HDMI / VGA	HDMI : Up to 4K (3840 x 2160), VGA : Max. 1080p	
	USB	3 EA (Front x1, Rear x2)	3 EA (Front x2, Rear x1)

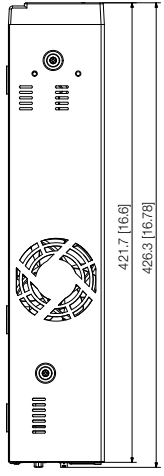
Item		Details	
		WRN-1610S	WRN-810S
Connections	Ethernet	RJ-45 (1000BASE-T x 2EA, PoE 100BASE-TX x 16EA)	RJ-45 (1000BASE-T x 2EA, PoE 100BASE-TX x 8EA)
	Alarm	(1) In(4EA) (2) Out(2EA, Relay, Typical DC12V 2A, MAX 30V) - Relay Out1(NO/NC/COM) - Relay Out2(NO/COM)	
Environmental			
Operating Temperature / Humidity		+0°C to +40°C (+32°F to +104°F)	
Humidity		20% ~ 85% RH	
Electrical			
Power		100 ~ 240V AC	
Power Consumption		Max. 320 W (4 HDDs, PoE(PoE+) on), Max. 63 W (4 HDDs, PoE(PoE+) off)	Max. 164 W (2 HDDs, PoE(PoE+) on), Max. 37 W (2 HDDs, PoE(PoE+) off)
PoE Budget		Each Max. 30 W (0.55 A), Total Max. 200 W (3.7 A)	Each Max. 30 W (0.55 A), Total Max. 100 W (1.85 A)
Mechanical			
Color / Material		Black / Steel	
Dimension (WxHxD)		440 x 89.8 x 426.3 mm (17.32 x 3.54 x 16.78)	370 x 50.7 x 324.3 mm (14.57 x 2 x 12.77)
Weight		5.2 kg (Based on no HDD)	2.7 kg (Based on no HDD)

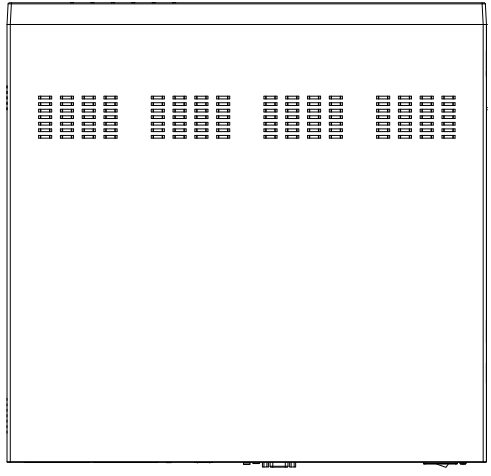
PRODUCT SPECIFICATION

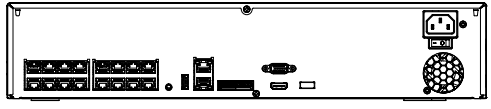
• WRN-1610S

unit : mm [inches]



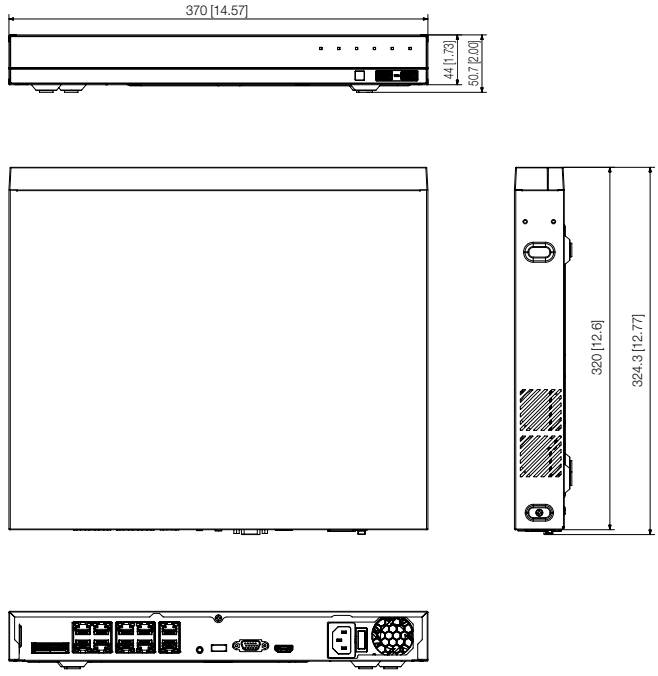




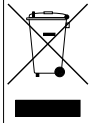


• WRN-810S

unit : mm [inches]



Hanwha Techwin cares for the environment at all product manufacturing stages, and is taking measures to provide customers with more environmentally friendly products.
The Eco mark represents Hanwha Techwin's devotion to creating environmentally friendly products, and indicates that the product satisfies the EU RoHS Directive.



Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

Head Office
6, Pangyo-ro 319 beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, 463-400 Rep. of KOREA
Tel : +82.70.7147.8753 Fax : +82.31.8018.3740
www.hanwha-security.com

Hanwha Techwin America
500 Frank W. Burr Blvd. Suite 43 Teaneck, NJ 07666
Toll Free +1.877.213.1222 Direct +1.201.325.6920
Fax +1.201.373.0124
www.hanwhasecurity.com

Hanwha Techwin Europe
Heriot House, Heriot Road, Chertsey, Surrey, KT16 9DT, United Kingdom
Tel +44.1372.235663 Fax +44.1932.57.8101
www.hanwha-security.eu

Hanwha Techwin Vietnam Hanoi Office
28th Floor, Handico Building, Pham Hung Street, Me Tri ward,
Nam Tu Liem District, Hanoi City, Vietnam
Tel : +84.91.982.40.88
www.hanwha-security.com

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