

WISENET

NETWORK VIDEO RECORDER

Product Specification Manual

XRN-410S/810S
QRN-410/810
QRN-410S/810S/1610S



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 : 210mAh
- Continuous standard load : 0.4mA
- Operating temperature : -20°C ~ +60°C
(-4°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.
Press <OK> on the system shutdown popup window and then remove the power cable to ensure a safe power off.
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 in door use and all the communication wirings are limited to inside of the building.

Security Precautions

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.

NVR products supporting each feature

Function	Products
Fan	QRN-810, QRN-810S, XRN-410S, QRN-410, QRN-410S
PoE	QRN-1610S, XRN-810S, QRN-810S, XRN-410S, QRN-410S
P2P	QRN-1610S, XRN-810S, QRN-810, QRN-810S, XRN-410S, QRN-410, QRN-410S
Remote controller	QRN-1610S, XRN-810S, QRN-810, QRN-810S, XRN-410S, QRN-410, QRN-410S ▪ The QRN-410/QRN-410S and XRN-410S models may not support remote control depending on the sales region.

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Product Specification

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Product Overview

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.

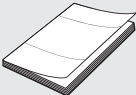
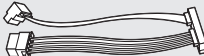
- User-friendly UI
- Supports a range of 4K camera resolutions
- Outputs a 4K high definition image using HDMI
- Record and play video
- Record and play audio
- Supports ONVIF Profile S standard and RTP / RTSP protocols
- Display the HDD operation status by HDD SMART
- HDD overwrite enabled
- Backup using USB 2.0, 3.0 protocols and external HDD
- Simultaneous play of 4, 8 channels
- Various Search Modes (Time, Event, Smart, Text, Backup, ARB)
- ARB support (configuration feature for saving period by channel)
- Various Recording Modes (Normal, Event, Scheduled Recording)
- Alarm Input / Output
- Remote Monitoring function by Windows Network Viewer
- Live monitoring of the network camera
- Installation Wizard Function (Easy Setup, Quick Setup)
- Supports the smartphone remote monitoring feature by P2P support
- Provides smartphone event alarm (sending real-time event messages)

Package Contents

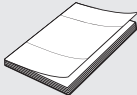
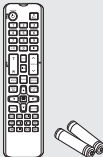
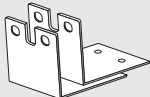
Please unwrap the product, and place the product on a flat place or in the place to be installed. Please check the following contents are included in addition to the main unit.

- Accessory category and quantity may differ depending on sales region.

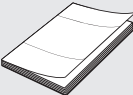
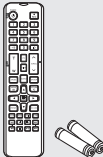
XRN-410S/QRN-410/QRN-410S

		
NVR	Mouse	Power Cable
		
Power Adaptor	Quick Manual	Terminal block (N/A on QRN-410S)
		
HDD Fixing Screw (For models having no installed HDD)	SATA Cable (For models having no installed HDD)	

XRN-810S/QRN-1610S

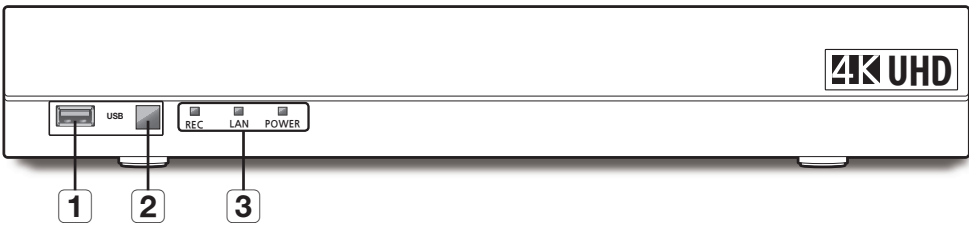
		
NVR	Mouse	Power Cable
		
Quick Manual	Terminal block	Remote Control / Remote Control Battery (AAA)
		
Bracket rack	Bracket Fixing Screw	

QRN-810/QRN-810S

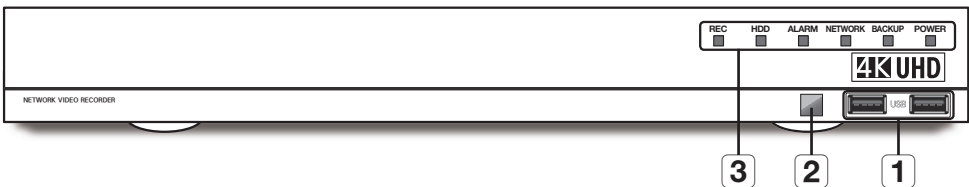
		
NVR	Mouse	Power Cable
		
Power Adaptor	Quick Manual	Terminal block (N/A on QRN-810S)
		
Remote Control / Remote Control Battery (AAA)	HDD Fixing Screw (For models having no installed HDD)	SATA Cable (For models having no installed HDD)

PART NAMES AND FUNCTIONS (FRONT)

XRN-410S/QRN-410/QRN-810/QRN-410S/QRN-810S



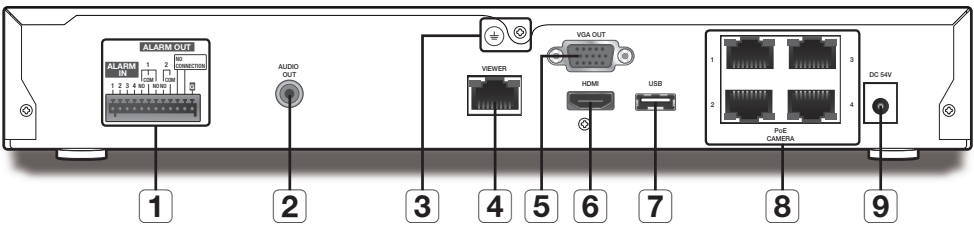
XRN-810S/QRN-1610S



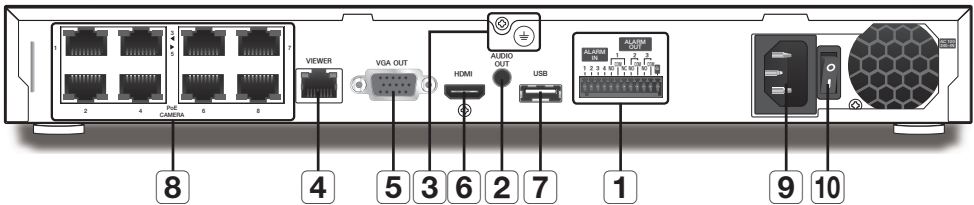
Part Names		Functions
1	USB	Connects the USB devices. (USB 2.0 supported)
2	Remote Reception System	Receive the signal from the remote control.
3	LED Indicator	REC : Lights on when recording is in progress.
		HDD : Displays the normal access to HDD. LED turns on when accessing the hard disk. (XRN-810S/QRN-1610S)
		ALARM : Lights on when an event occurs. (XRN-810S/QRN-1610S)
		NETWORK (LAN) : Displays both network connection and data transfer status.
		BACKUP : Stays ON when backup is in operation. (XRN-810S/QRN-1610S)
		POWER : Shows the power ON/OFF status.

PART NAMES AND FUNCTIONS (REAR)

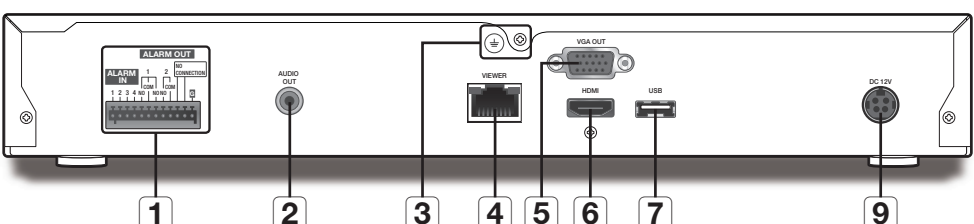
XRN-410S



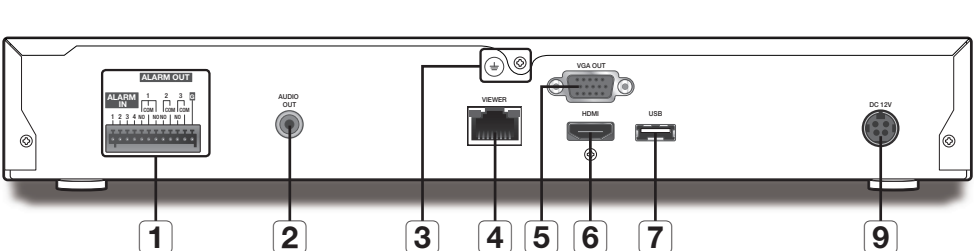
XRN-810S



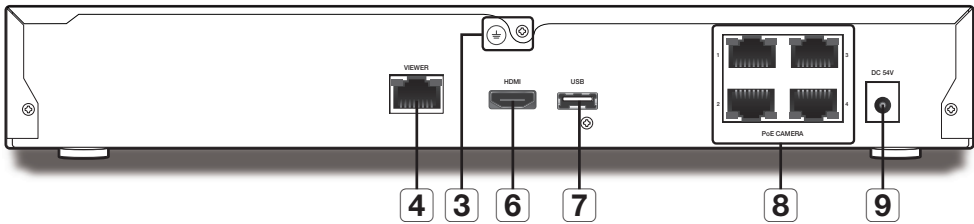
QRN-410



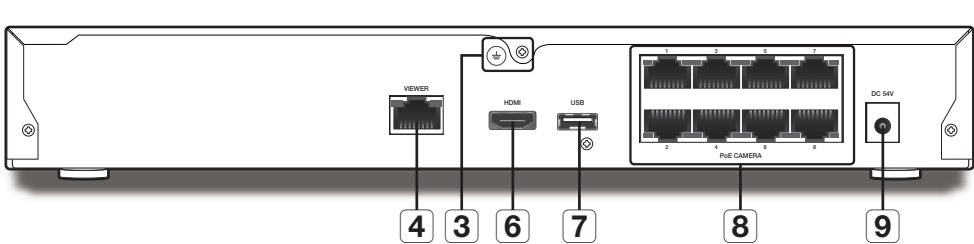
QRN-810



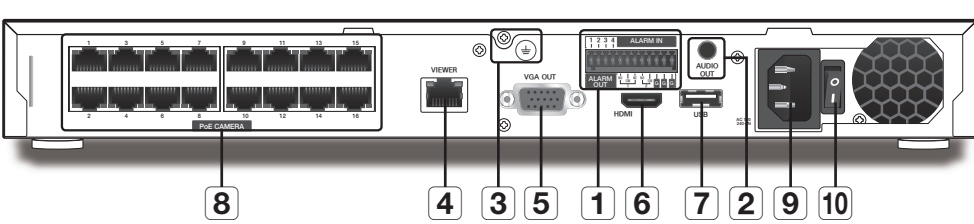
QRN-410S



QRN-810S



QRN-1610S



Part Names		Functions
1	ALARM	- ALARM IN : Alarm input ports. (1~4 CH) - ALARM OUT : Alarm output ports. XRN-410S/QRN-410/QRN-1610S : 1~2 CH XRN-810S/QRN-810 : 1~3 CH
2	AUDIO OUT	Audio Signal Output Port (RCA jack).
3	Ground connection	Terminal to connect a separate ground cable. ■ Add a ground cable to support the safe use of the device.
4	VIEWER	Port recommended for connection with a network, web viewer.
5	VGA OUT	VGA Video Signal Output Port.
6	HDMI	HDMI connector port.
7	USB	Connects the USB devices. (USB 3.0 supported)
8	PoE (CAMERA)	Power supply port to connect to a camera.
9	Power	Terminal to connect power to.
10	Power Switch	Power on/off switch.

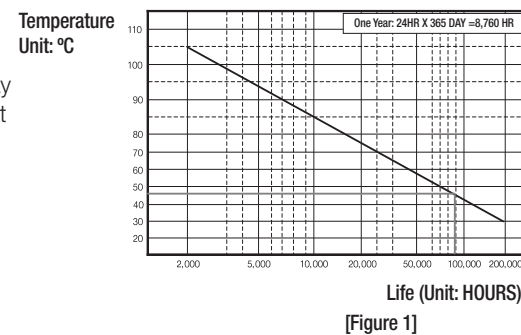
Please take note of the followings before using this product.

- 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.

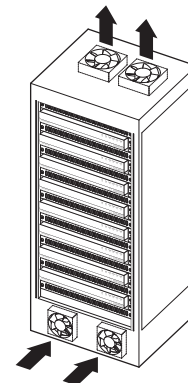


When mounting the product on a rack, comply with the following instructions.

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 products 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.

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 (T_{ma}) 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).

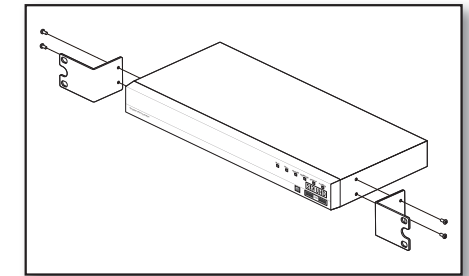


[Figure 2]

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.



<XRN-810S/QRN-1610S>

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 : XRN-410S/QRN-410/QRN-810/QRN-410S/QRN-810S : Max. 1
XRN-810S/QRN-1610S : Max. 2
- 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.

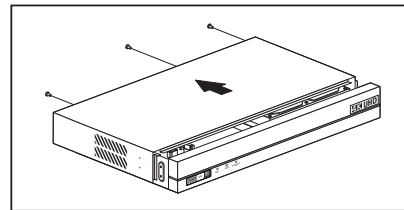
Installing the HDD

- ! ■ 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.
To learn how to format, see "Device/Format" in the Wisenet NVR User Manual.

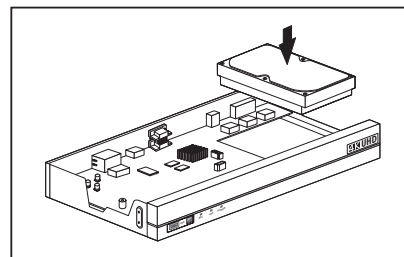
How to install an HDD in XRN-410S/QRN-410/QRN-810/QRN-410S/QRN-810S

- The following figures are based on Model XRN-410S.

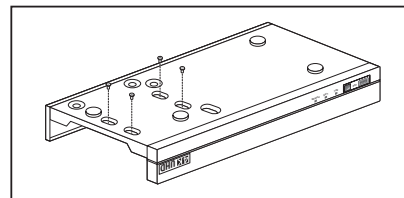
1. After unscrewing, push back and remove the cover.



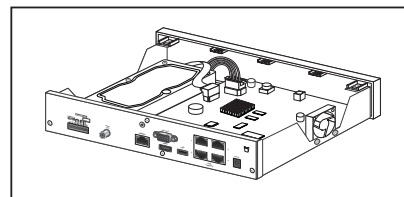
2. Connect the SATA/power cables of the HDD to the connectors on the mainboard.



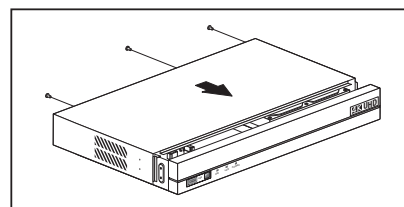
3. Using the screws, fix the HDD to the bottom of the set.



4. Check for any problems in the connection terminal and the wiring in the product, close the cover and fix it with screws.



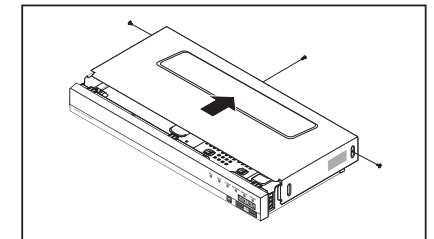
5. Close the cover, and tighten a setscrew in the back.



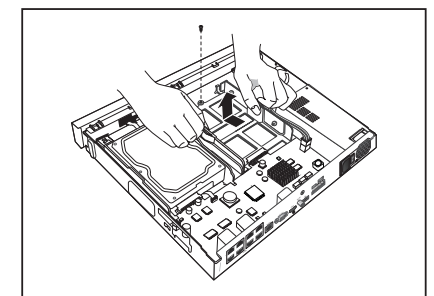
How to install an HDD in XRN-810S/QRN-1610S

- The following figures are based on Model XRN-810S.

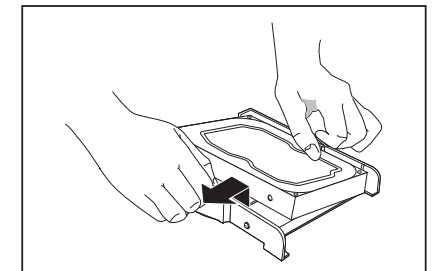
1. After unscrewing, push back and remove the cover.



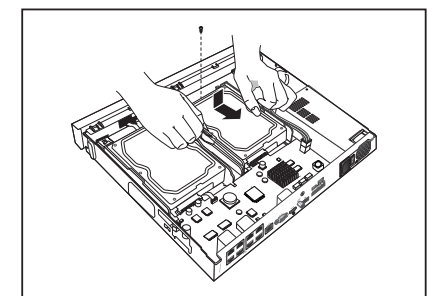
2. Separate them by unscrewing the fixed bracket screw and push it towards the arrow on the board.



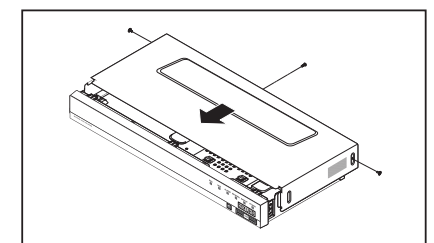
3. After aligning and inserting one side of the HDD to the bracket, open the other side bracket wide and insert the HDD between them.
 - Align a hole in the bracket with a screw hole in the HDD to fix them.



4. Push the bracket with the HDD installed and tighten the screws to fix it.

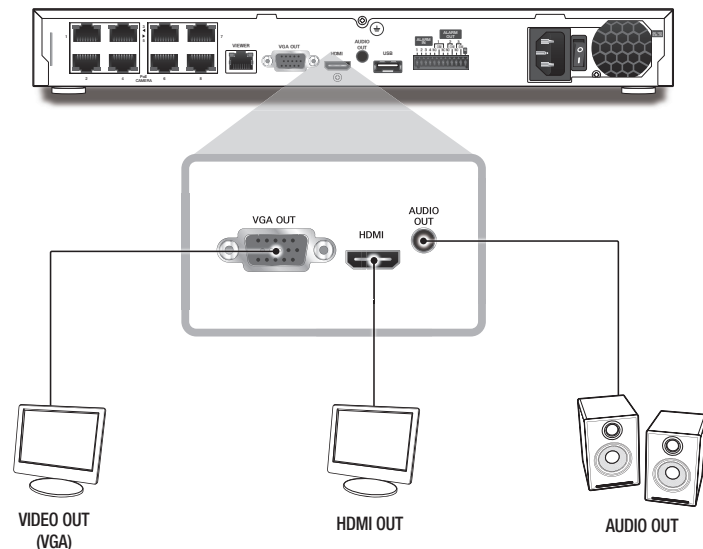


5. Close the cover and tighten the screws to fix it.



CONNECTING TO AN EXTERNAL DEVICE

- The following figures are based on Model XRN-810S.

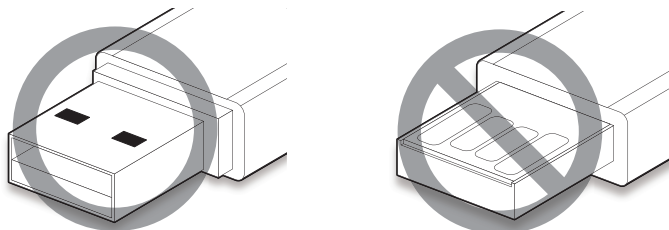


- Unrated or improper power source may cause damage to the system. Ensure that you use only the rated power source before pressing the POWER button.

CONNECTING THE USB

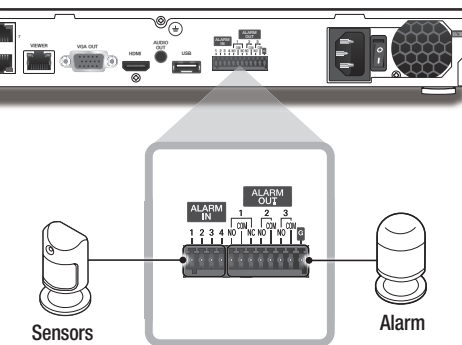
- On the front of the product, there is a USB port.
- You can connect a USB HDD, USB memory or mouse to the USB port.
- If your USB HDD is connected to the system, it can be detected and set up by following the steps in "**Menu > Device > Storage Device**" of the Wisenet NVR User Manual.
- The product 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.

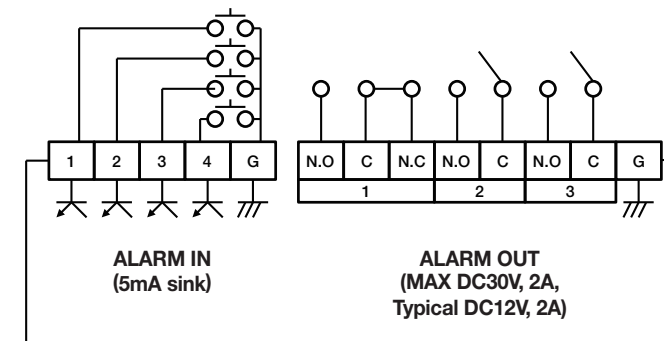


CONNECTING THE ALARM INPUT/OUTPUT

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



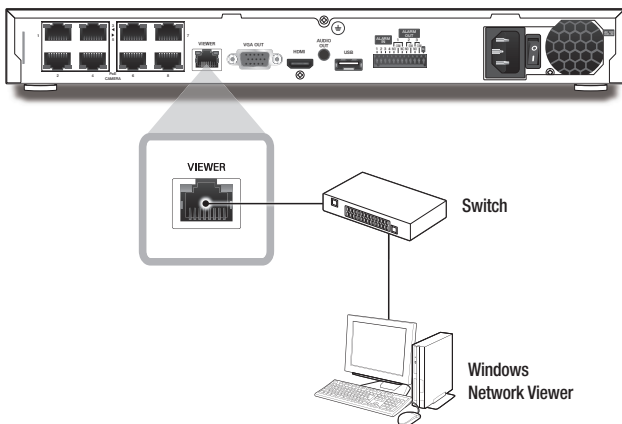
- ALARM IN 1 ~ 4 : Alarm Input Port
- ALARM OUT 1 ~ 3 : Alarm Output Port



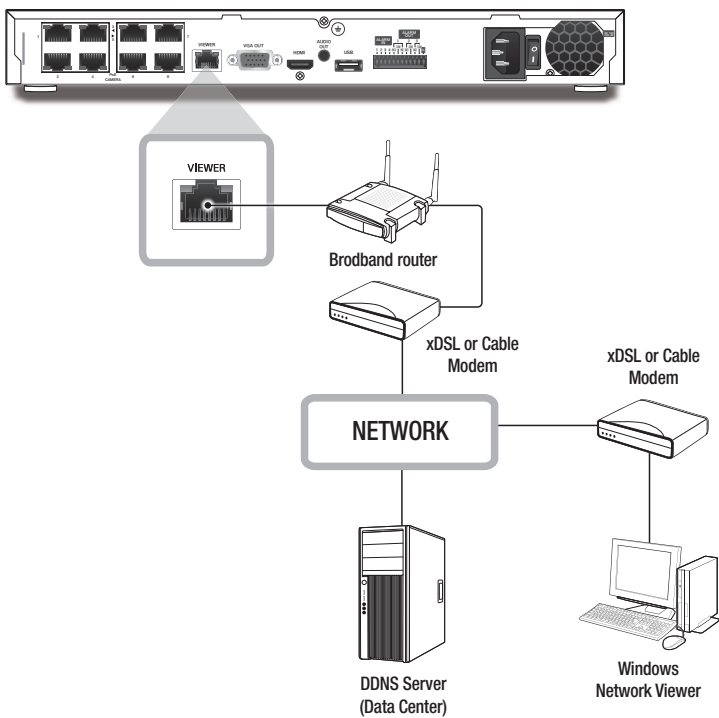
CONNECTING THE NETWORK

- For more information about network connection, see "Network Configuration" in the Wisenet NVR User Manual.
- The following figures are based on Model XRN-810S.

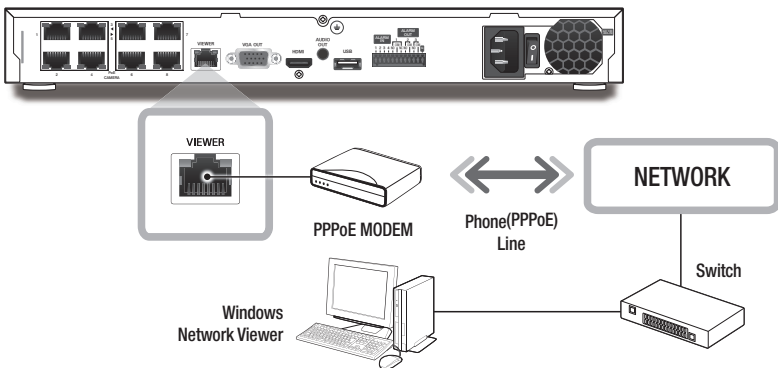
Network connection via Ethernet (10/100/1000BaseT)



Network connection via router

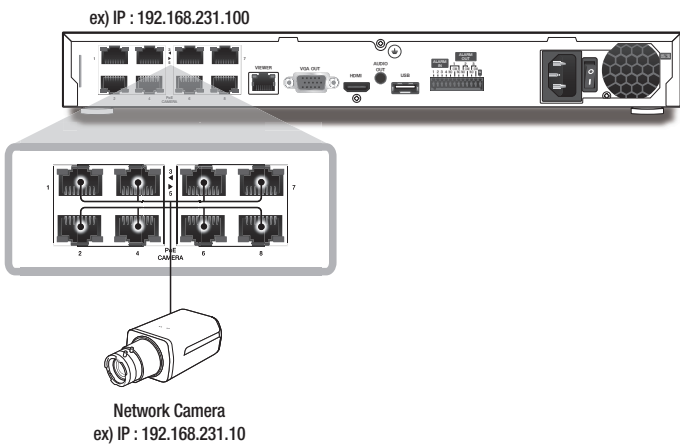


Connecting to Internet through PPPoE

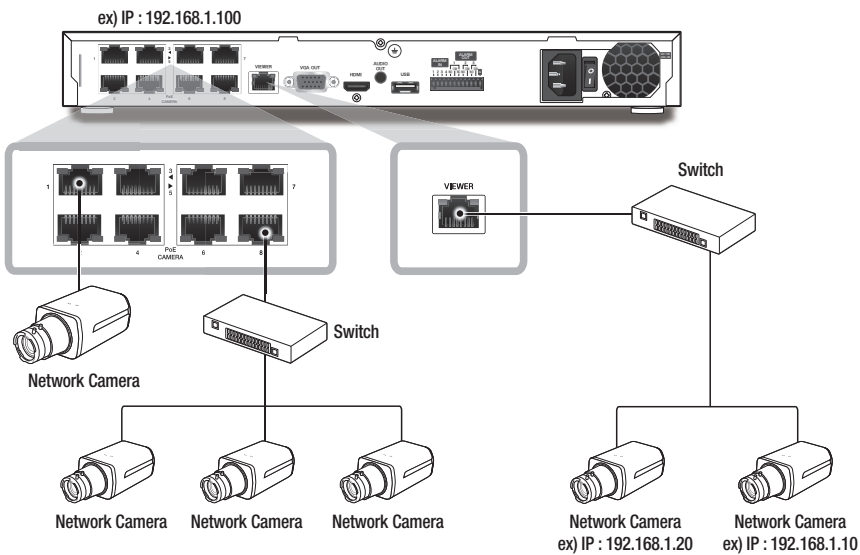


Connecting the network camera

Example 1)



Example 2)



• XRN-410S/XRN-810S

Item		Details	
		XRN-410S	XRN-810S
Display			
Network Camera	Inputs	Max. 4CH	Max. 8CH
	Resolution	CIF ~ 8MP	
	Protocols	Wisenet, ONVIF	
Live	Local Display	1x HDMI(HDMI 1.4) / 1x VGA	
	Performance	[Local Monitor] 8MP(60fps) 5MP(90fps), 3MP(120fps), 2MP(240fps), 720p(240fps), D1(240fps) - But for Mjpeg, up to 2MP is allowed	
Performance			
Operating System	Embedded	Linux	
Record	Compression	H.265, H.264, MJPEG (It can decode up to 2M)	
	Recording Bandwidth	Max. 50Mbps	Max. 100Mbps
	Resolution	CIF ~ 8MP	
Search & Play	Playback Bandwidth	32Mbps (4CH simultaneously)	32Mbps (8CH simultaneously)
	Performance	Max. 3 Users (Local 1, Remote 3)	
	Simultaneous playback	Max. 4CH (Local, Network)	Max. 8CH (Local, Network)
	Resolution	CIF ~ 8MP	
	Playback Control	Fast/Slow Forward/Backward, Move one step up/down	
Storage	Built-In	0TB ~ 6TB (dependent on region) - Seagate : ~ 4TB	
	Internal HDD	1 (Max. 6TB)	2 (Max. 12TB)

Item		Details	
		XRN-410S	XRN-810S
Backup	File backup	BU/Exe(USB), JPG/AVI(Web, CMS)	
	Function	Multi channel(Upto 4CH) Play, Date-Time/Title display	Multi channel(Upto 8CH) Play, Date-Time/Title display
Sensor	I/O	4/2 (NO 1EA, NO/NC 1EA)	4/3 (NO 2EA, NO/NC 1EA)
Audio	Input	4CH (network)	8CH (network)
	Compression	G.711, G.726, AAC(16/48KHz)	
	Audio Communication	2-Way	
Network			
Protocol		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)	
DDNS		Hanwha Security DDNS	
Transmission Bandwidth		64Mbps	128Mbps
Max Remote Users		Search(3) / Live unicast(10) / Multicast(20)	
IP Version		IPv4/v6	
Security		User access Log, IP Filtering, 802.1x, Encryption	
Language		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai	
OS		Windows 7, 8, 10, Mac OS X 10.9. 10.10. 10.11	
Web Browser		Plug-in free web viewer Supported Browser: Google Chrome 47, MS Edge 20 Plug-in Webviewer Supported MS Explore 11, Apple Safari 9 * Mac OS X only	
Viewer Software	Type	SSM, Webviewer, SmartViewer, Wisenet Mobile	
	CMS Support	SDK/CGI (SUNAPI)	

Item		Details	
		XRN-410S	XRN-810S
Functions			
Camera Control	PoE	1) Monitor PoE Power consumption 2) On/Off Control for each PoE camera 3) Remote Reset for each PoE camera	
Easy Configuration		Setup Wizard(Date/Time, Network, Auto Camera Configuration) P2P (QR Code)	
Redundancy	ARB	Yes	
PTZ	Control	Via GUI, Webviewer, 300 preset	
Smart phone	Support Model	Android, iOS	
	Protocol Support	RTP, RTSP, HTTP, CGI (SUNAPI)	
Smart phone	Control	Live(4ch) : Multi-Profile Support Playback(1ch) Event push	Live(8ch) : Multi-Profile Support Playback(1ch) Event push
System Control		Mouse, Web, IR Remocon	
Indicator/Interface			
Front	Indicator	LED (Status indicator) : 3EA Power Status LED 1EA Lan Status LED 1EA Record Status LED 1EA	LED (Status indicator) : 6EA Power Status LED 1EA HDD Action LED 1EA Alarm Status LED 1EA Record Status LED 1EA Network Action LED 1EA Backup LED 1EA
Connectors	VGA	1EA	
	HDMI	1EA - Support upto 4K (3840 x 2160), 30Hz	

Item		Details	
		XRN-410S	XRN-810S
Connectors	Audio	Out(1EA, RCA, Line)	
	Ethernet	■ 4EA (PoE/PoE+, 100Mbps) ■ 1EA (WAN, 1Gbps) - WAN : Uplink to CMS	■ 8EA (PoE/PoE+, 100Mbps) ■ 1EA (WAN, 1Gbps) - WAN : Uplink to CMS
	Alarm	In(4EA, Terminal Block) Out(2EA, Terminal Block)	In(4EA, Terminal Block) Out(3EA, Terminal Block)
	USB	2EA(Front 1, Rear 1)	3EA(Front 2, Rear 1)
	Storage	-	
	Serial	-	
	Reset	Switch (1EA)	
	Power Cord	Included	
System			
Log	Log List	Max. 20000 (System Log, Event Log each)	
Environmental			
Operating Temperature / Humidity		+0°C to +40°C (+32°F to +104°F)	
Humidity		20% ~ 85% RH	
Electrical			
Power Input		54V DC / 1.67A	100 to 240 VAC ±10%
Power Consumption		MAX. 13W (44BTU, 2TB HDD x 1ea)	MAX. 19W (64BTU, 2TB HDD x 1ea)
PoE Budget		Max. 50W	Max. 100W
Mechanical			
Color / Material		Black / Metal	
Dimension (WxHxD)		W300 x H47 x D208.7mm (11.81"X1.85"X8.22") (1U)	W370 x H44 x D320mm (14.57"X1.73"X12.6") (1U)
Weight		1.694Kg (2T HDD)	3.356kg (2T HDD)

• QRN-410/QRN-810

Item		Details	
		QRN-410	QRN-810
Display			
Network Camera	Inputs	Max. 4CH	Max. 8CH
	Resolution	CIF ~ 8MP	
	Protocols	Wisenet, ONVIF	
Live	Local Display	1x HDMI(HDMI 1.4) / 1x VGA	
	Performance	[Local Monitor] 8MP(60fps) 5MP(90fps), 3MP(120fps), 2MP(240fps), 720p(240fps), D1(240fps) - But for Mjpeg, up to 2MP is allowed	
Performance			
Operating System	Embedded	Linux	
Record	Compression	H.265, H.264, MJPEG (It can decode up to 2M)	
	Recording Bandwidth	Max. 50Mbps	Max. 100Mbps
	Resolution	CIF ~ 8MP	
Search & Play	Playback Bandwidth	32Mbps (4CH simultaneously)	32Mbps (8CH simultaneously)
	Performance	Max. 3 Users (Local 1, Remote 3)	
	Simultaneous playback	Max. 4CH (Local, Network)	Max. 8CH (Local, Network)
	Resolution	CIF ~ 8MP	
	Playback Control	Fast/Slow Forward/Backward, Move one step up/down	
Storage	Built-In	0TB ~ 6TB (dependent on region) - Seagate : ~ 4TB	
	Internal HDD	1 (Max. 6TB)	

Item		Details	
		QRN-410	QRN-810
Backup	File backup	BU/Exe(USB), JPG/AVI(Web, CMS)	
	Function	Multi channel(Upto 4CH) Play, Date-Time/Title display	Multi channel(Upto 8CH) Play, Date-Time/Title display
Sensor	I/O	4/2 (NO 1EA, NO/NC 1EA)	4/3 (NO 2EA, NO/NC 1EA)
Audio	Input	4CH (network)	8CH (network)
	Compression	G.711, G.726, AAC(16/48KHz)	
	Audio Communication	2-Way	
Network			
Protocol		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)	
DDNS		Hanwha Security DDNS	
Transmission Bandwidth		64Mbps	128Mbps
Max Remote Users		Search(3) / Live unicast(10) / Multicast(20)	
IP Version		IPv4/v6	
Security		User access Log, IP Filtering, 802.1x, Encryption	
Language		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai	
OS		Windows 7, 8, 10, Mac OS X 10.9. 10.10. 10.11	
Web Browser		Non-plugin Webviewer Supported Browser: Google Chrome 47, MS Edge 20 Plug-in Webviewer Supported MS Explore 11, Apple Safari 9 * Mac OS X only	
Viewer Software	Type	SSM, Webviewer, SmartViewer, Wisenet Mobile	
	CMS Support	SDK/CGI (SUNAPI)	

Item		Details	
		QRN-410	QRN-810
Functions			
Easy Configuration		Setup Wizard(Date/Time, Network, Auto Camera Configuration) P2P (QR code)	
Redundancy	ARB	Yes	
PTZ	Control	Via GUI, Webviewer, 300 preset	
Smart phone	Support Model	Android, iOS	
	Protocol Support	RTP, RTSP, HTTP, CGI (SUNAPI)	
	Control	Live(4ch) : Multi-Profile Support Playback(1ch) Event push	Live(8ch) : Multi-Profile Support Playback(1ch) Event push
System Control		Mouse, Web, IR Remocon	
Indicator/Interface			
Front	Indicator	Power Status LED 1EA Lan Status LED 1EA Record Status LED 1EA	
Connectors	VGA	1EA	
	HDMI	1EA - Support upto 4K (3840 x 2160), 30Hz	
	Audio	Out(1EA, RCA, Line)	
	Ethernet	1EA (WAN, 1Gbps) - WAN : Uplink to CMS	
	Alarm	In(4EA, Terminal Block) Out(2EA, Terminal Block)	In(4EA, Terminal Block) Out(3EA, Terminal Block)
	USB	Front 1EA(USB2.0), Rear 1(USB3.0)	
	Storage	-	
	Serial	-	
	Reset	Switch (1EA)	
	Power Cord	Included	

Item		Details	
		QRN-410	QRN-810
System			
Log	Log List	Max. 20000 (System Log, Event Log each)	
Environmental			
Operating Temperature / Humidity		+0°C to +40°C (+32°F to +104°F)	
Humidity		20% ~ 85% RH	
Electrical			
Power Input		12V/4A	
Power Consumption		MAX. 9W(31BTU, 2TB HDD x 1ea)	
Mechanical			
Color / Material		Black / Metal	
Dimension (WxHxD)		W300 x H47 x D208.7mm (11.81"X1.85"X8.22") (1U)	
Weight		1.655Kg (2T HDD)	

• QRN-410S/QRN-810S/QRN-1610S

Item		Details		
		QRN-410S	QRN-810S	QRN-1610S
Display				
Network Camera	Inputs	Max. 4CH	Max. 8CH	Max. 16CH
	Resolution	CIF ~ 8MP		
	Fish-Eye Dewarping	N/A (process on Web / CMS)		
	Protocols	Wisenet, ONVIF, RTSP		
Live	Local Display	1x HDMI		1x HDMI / 1x VGA
	Performance	[Local Monitor] 8MP(60fps) 5MP(90fps), 3MP(120fps), 2MP(120fps), 720p(120fps), D1(120fps)	[Local Monitor] 8MP(60fps) 5MP(90fps), 3MP(120fps), 2MP(240fps), 720p(240fps), D1(240fps)	[Local Monitor] 8MP(60fps) 5MP(90fps), 3MP(120fps), 2MP(240fps), 720p(480fps), D1(480fps)
Performance				
Operating System	Embedded	Linux		
Record	Compression	H.265, H.264, MJPEG		
	Recording Bandwidth	Max. 40Mbps	Max. 80Mbps	Max. 128Mbps
	Resolution	CIF ~ 8MP		
Search & Play	Playback Bandwidth	32Mbps (4CH simultaneously)	32Mbps (8CH simultaneously)	
	Performance	Max. 3 Users (Local 1, Remote 3)		
	Simultaneous playback	Max. 4CH (Local, Network)	Max. 8CH (Local, Network)	Max. 8CH (Local), Max. 16CH (Network)
	Resolution	CIF ~ 8MP		
	Fish-Eye Dewarping	N/A (processed on Web / CMS)		
	Playback Control	Fast/Slow Forward/Backward, Move one step up/down		
Storage	Built-In	N/A		
	Internal	1 (Max. 6TB)		2 (Max. 12TB)

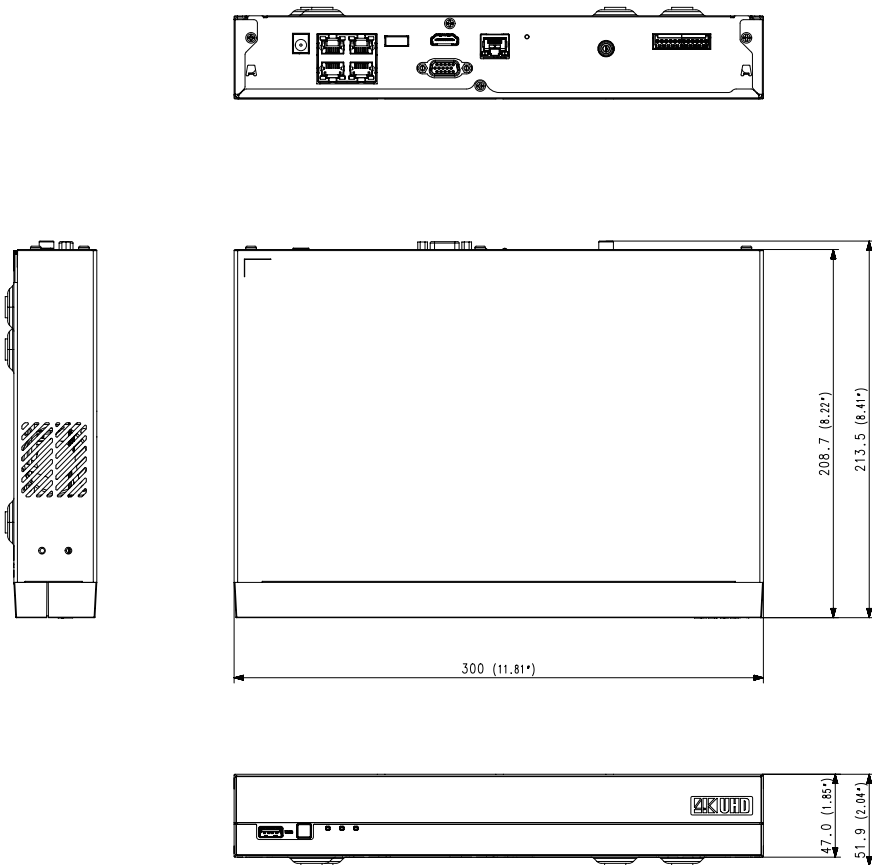
Item		Details		
		QRN-410S	QRN-810S	QRN-1610S
Backup	File backup	BU/Exe(USB), JPG/AVI(Web, CMS)		
	Function	Multi channel(Upto 4CH) Play, Date-Time/Title display	Multi channel(Upto 8CH) Play, Date-Time/Title display	
Sensor	I/O	N/A		4/2 (NO 1EA, NO/NC 1EA)
Audio	Input	4CH (network)	8CH (network)	16CH (network)
	Compression	G.711, G.726, AAC(16/48KHz)		
	Audio Communication	2-Way		
Network				
Protocol		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)		
DDNS		Hanwha Security DDNS		
Transmission Bandwidth		50Mbps	80Mbps	128Mbps
Max Remote Users		Search(3) / Live unicast(10) / Multicast(20)		
IP Version		IPv4/v6		
Security		User access Log, IP Filtering, 802.1x, Encryption		
OS		Windows 7, 8, 10, Mac OS X 10.9. 10.10. 10.11		
Web Browser		Plug-in free web viewer Supported Browser: Google Chrome 47, MS Edge 20 Plug-in Webviewer Supported MS Explore 11, Apple Safari 9 * Mac OS X only		
Viewer Software	Type	SSM, Webviewer, SmartViewer, Wisenet Mobile		
	CMS Support	SDK/CGI (SUNAPI)		
Functions				
Camera Control	PoE	1) Monitor PoE Power consumption 2) On/Off Control for each PoE camera 3) Remote Reset for each PoE camera		

Item		Details		
		QRN-410S	QRN-810S	QRN-1610S
Easy Configuration		Setup Wizard(Date/Time, Network, Auto Camera Configuration) P2P (QR Code)		
ARB		Yes		
PTZ	Control	Via GUI, Webviewer, 300 preset		
Smart phone	Support Model	Android, iOS		
	Protocol Support	RTP, RTSP, HTTP, CGI (SUNAPI)		
	Control	Live(4ch) : Multi-Profile Support Playback(1ch) Event push	Live(8ch) : Multi-Profile Support Playback(1ch) Event push	Live(16ch) : Multi-Profile Support Playback(1ch) Event push
	Max. Remote Users	Search(3) / Live unicast(10) / Multicast(20)		
System Control		Mouse, Web	Mouse, Web, IR Remocon	
Indicator/Interface				
Front	Indicator	LED (Status indicator) : 3EA Power Status LED 1EA Lan Status LED 1EA Record Status LED 1EA		LED (Status indicator) : 6EA Power Status LED 1EA HDD Action LED 1EA Alarm Status LED 1EA Record Status LED 1EA Network Action LED 1EA Backup LED 1EA
Connectors	VGA	N/A		1EA(1920x1080, 1280x1024, 1280x720, 1024x768)
	HDMI	1EA (3840 x 2160, 2560x1440, 1920x1080, 1280x1024, 1280x720, 1024x768)		
	Audio	N/A		Out(1EA, RCA)
	Ethernet	■ 4EA (PoE, 100Mbps) ■ 1EA (WAN, 100Mbps) - WAN : Uplink to CMS	■ 8EA (PoE, 100Mbps) ■ 1EA (WAN, 1Gbps) - WAN : Uplink to CMS	■ 16EA (PoE, 100Mbps) ■ 1EA (WAN, 1Gbps) - WAN : Uplink to CMS

Item		Details		
		QRN-410S	QRN-810S	QRN-1610S
Connectors	Alarm	N/A		In(4EA, Terminal Block) Out(2EA, Terminal Block)
	USB	Front 1EA(USB2.0), Rear 1EA(USB3.0)		Front 2EA(USB2.0), Rear 1EA(USB3.0)
	Reset	Switch (1EA)		
	Power Cord	Included		
System				
Log	Log List	Max. 20000 (System Log, Event Log each)		
Environmental				
Operating Temperature / Humidity		+0°C to +40°C (+32°F to +104°F)		
Humidity		20% ~ 85% RH		
Electrical				
Power Input		54V DC / 1.20A	54V DC / 1.67A	100 to 240 VAC
Power Consumption		Max. 47W(1HDD, PoE on) Max. 7.4W(1HDD, PoE off)	Max. 76.2W(1HDD, PoE on) Max. 8.1W(1HDD, PoE off)	Max. 158.2W(2HDDs, PoE on) Max. 34.6W(2HDDs, PoE off)
PoE Budget		Max. 30W	Max. 50W	Max. 130W
Mechanical				
Color / Material		Black / Metal		
Dimension (WxHxD)		W300.0 x H47.1 x D208.4 mm(1U)		W370.0 x H44.0 x D320 mm(1U)
Weight		0.99Kg	1.01Kg	2.79Kg

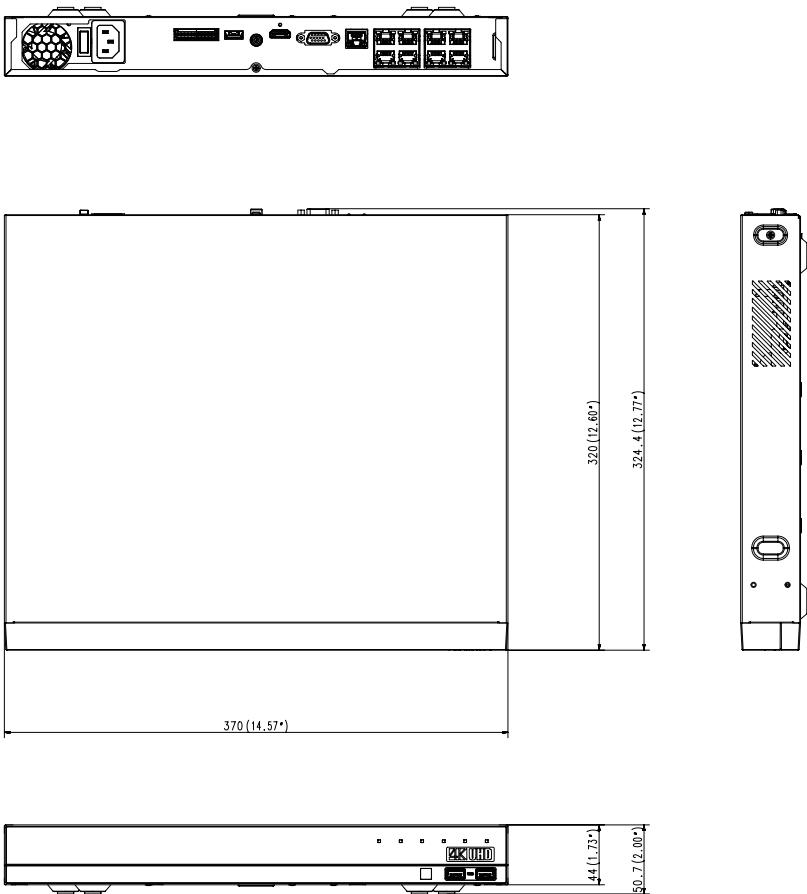
• XRN-410S

unit : mm (inches)



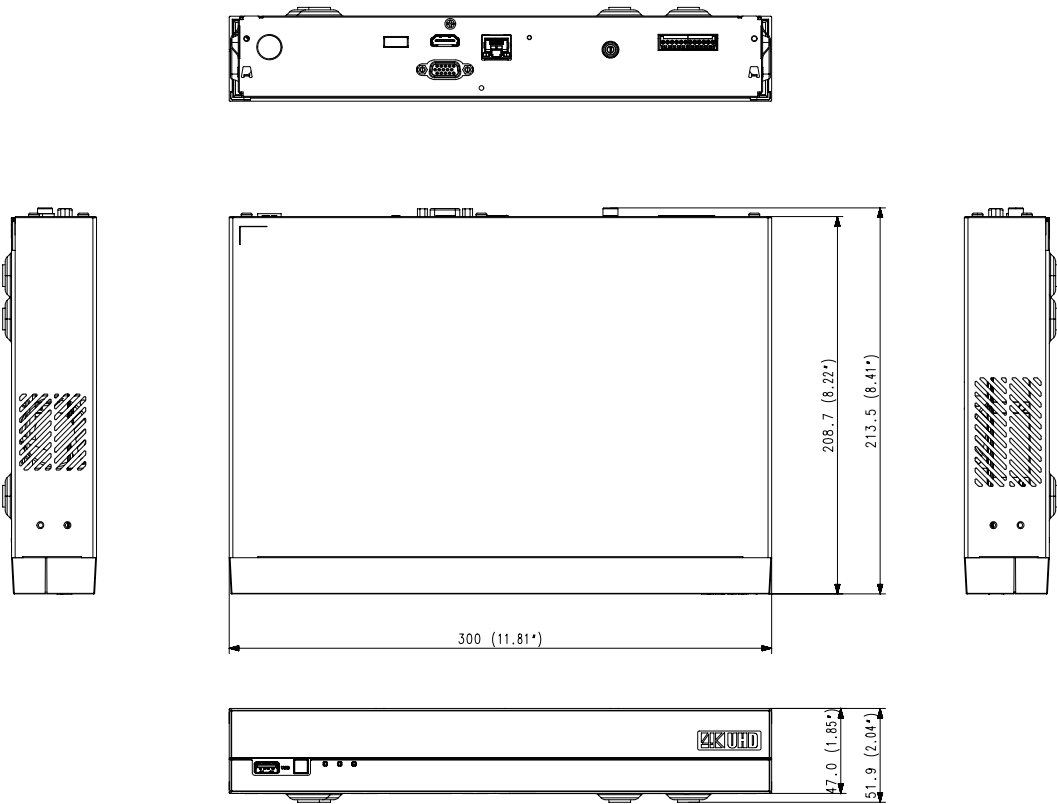
• XRN-810S

unit : mm (inches)



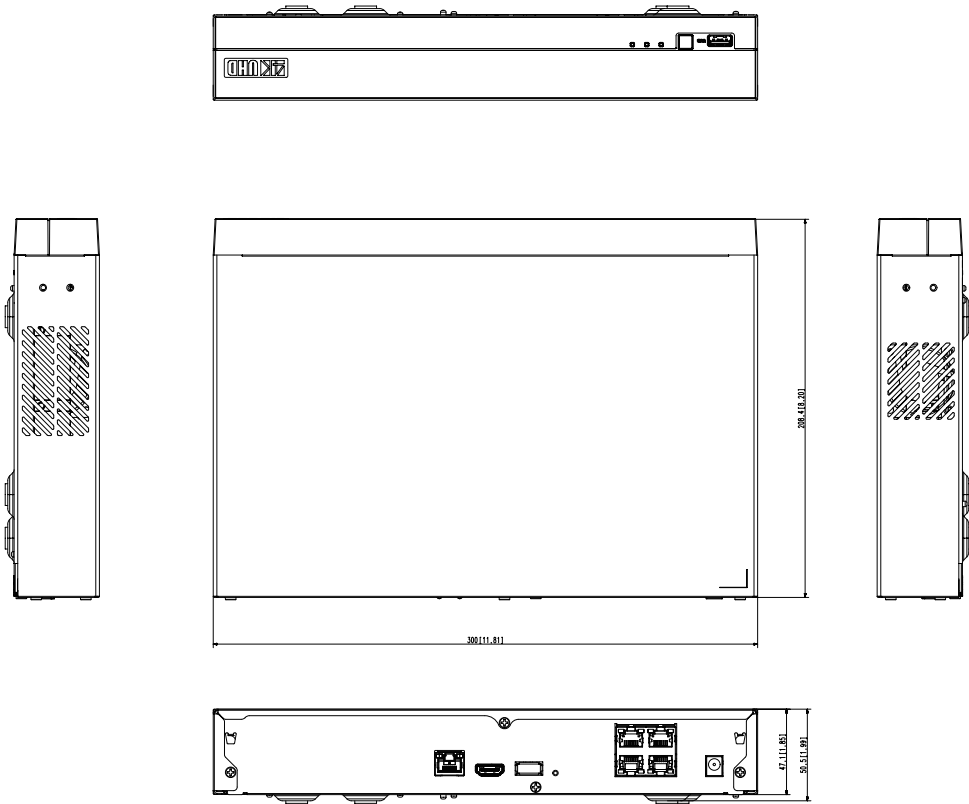
• QRN-410/QRN-810

unit : mm (inches)



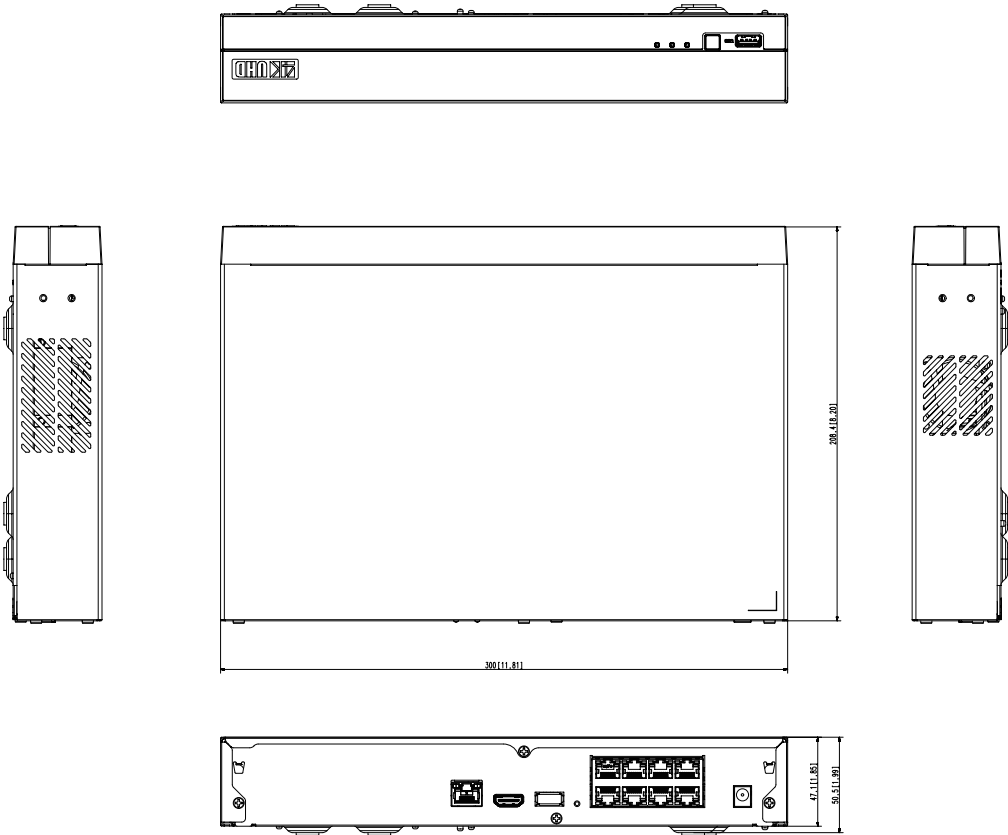
• QRN-410S

unit : mm (inches)



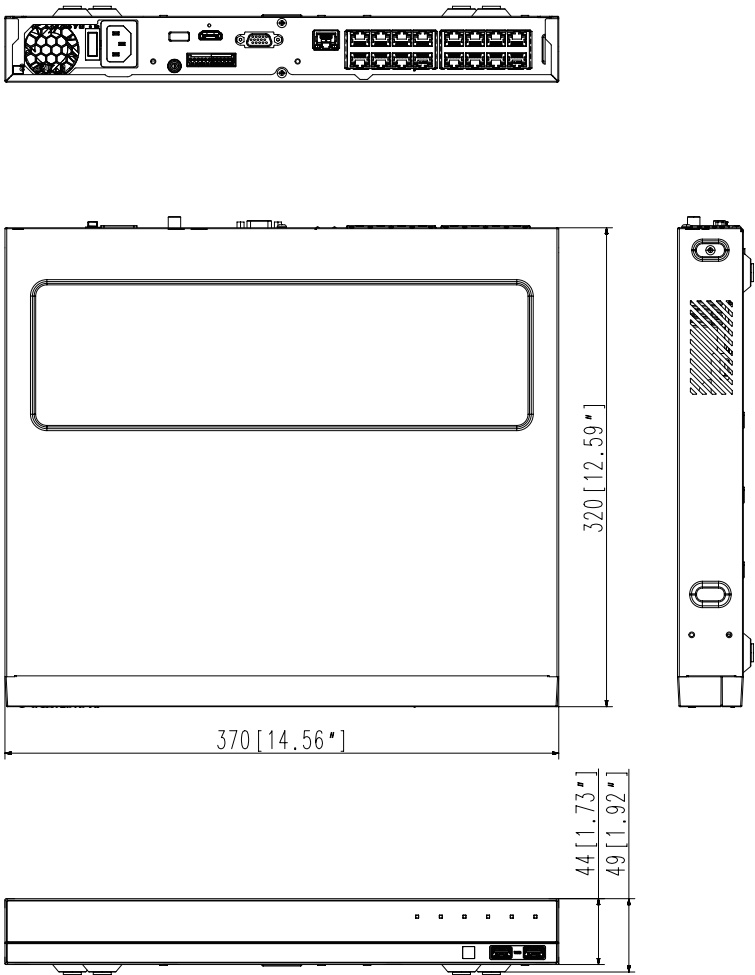
• QRN-810S

unit : mm (inches)



• QRN-1610S

unit : mm (inches)



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If you want to obtain the complete Corresponding Source code in the physical medium such as CD-ROM, the cost of physically performing source distribution might be charged.

For more details about Open Source, refer to the CD or Hanwha Website.

- **GPL Software:** acl-2.2.52, arp-scan-1.9, bash-4.3, bc-1.06, bluez-5.42, bonnie++-1.03e, busybox-1.24.1, coreutils-8.23, curlftpfs-0.9.2, dibbler-1.0.1, dosfstools-3.0.28, dvd+rw-tools-7.1, e2fsprogs-1.42.13, ethtool-3.11, fuse-2.9.7, gdb-7.8.1, grep-2.26, http-1.0.2, iftop-0.17, iptables-1.4.21, open-iscsi-2.0-873, libnfnetwork-1.0.1, lrzsz-0.12.20, lsscsi-0.28, LVM2.2.02.98, lzo-2.09, mdadm-3.4, memtester-4.3.0, mii-tool-1.9.1.1, msmtp v1.4.21, mtd-utils-1.5.1, net-tools-1.60, nethogs-0.8.0, nmon, nut-2.7.4, parted-3.2, procs-3.2.8, readline-6.2, rsync-3.1.2, smartmontools-6.5, sshpass-1.06, termcap-2.0.8, throttle-1.2, tree-1.7.0, udev-167, usbutils-0.72, util-linux-2.28-rc2, wget v1.18, wireless_tools.29, wpa_supplicant-0.7.3, xfsprogs-4.7.0
- **LGPL Software:** avahi-0.6.32, ffmpeg-2.4.3, glib-2.46.2, libdaemon-0.14, libnl-3.2.25, libusb-0.1.12, libusb-0.1.5, qrencode-3.4.4, wvdial-1.61, wstreams-4.6.1, Live555, qtopia4.7.2
- **MPL 1.1:** npapi-sdk
- **BSD 2-Clause License:** FreeBSD
- **BSD 3-Clause License:** minipnp-1.5-ppc, net-snmp v5.6.2.1, ppp-2.4.5, jquery.sha256, jsbn, libjpeg-turbo, lighttpd v1.4.35, msinttypes, requires, spher+++, sprintf 0.7, System-Verilog-Packet-Library, Text OpenGL Extension Wrangler Library 1.7.0
- **MIT License:** aptechcmv2, avropendous, cJSON, cJSON-Dave Gamble, dynatree, javascript-ipv6, jqGrid, jQuery UI, jquery-form, jquery-hashchange, jquery-json, jquery-numeric, jquery-throttle-debounce 1.1, JS-Browser-Driver, moon9, noty, Raphael JavaScript Library, wildflower 1.3.Beta
- **libxml2 License:** libxml2 v2.7.7
- **Apache 2.0 License:** RLLib
- **zlib/libpng Lisence:** cximage, HM NIS Edit, Nullsoft Scriptable Install System 2.46, PNG reference library, tinyxml 2.6.2, zlib v1.2.8
- **Boost Software License:** boost 1.57.0
- **Curl License:** curl v7.49.1
- **Microsoft Public License:** Minima, Text Designer Outline Text Library
- **Code Project Open 1.02 License:** CPPPSQLite - C++ Wrapper for SQLite, A reusable, high performance, socket server class - Part3
- **JPEG License:** libjpeg-8b
- **RSA MD4 or MD5 Message-Digest Algorithm License:** JavaScript MD5 1.1, sipxapi
- **PHP License 3.01:** HPHP-2.1.0, php v5.6.33
- **OpenSSL Combined License:** openssl v1.0.2n
- **PCRE 5 License:** pcre v8.39
- **NTP License:** ntp v4.2.8p10
- **CodeIgniter License:** CodeIgniter
- **GLUT for Win32 License:** GLUT for Win32
- **ISC License:** dhcp 4.3-2rc2
- **Brian Gladman Alternate License:** AES with the VIA ACE
- **Acknowledgement:** This product includes modified version of ffmpeg, Live555, qtopia4.7.2 and npapi-sdk.

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Version 2, June 1991

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- [5]Michael Barone <michael,barone@lmco.com> GPSVME fixes
- [6]Karl Berry <karl@owl.HQ.ileaf.com> syslog to file option
- [7]Greg Brackley <greg.brackley@bigfoot.com> Major rework of WINNT port. Clean up recvbuf and iosignal code into separate modules.
- [8]Marc Brett <Marc.Brett@westgeo.com> Magnavox GPS clock driver
- [9]Piete Brooks <Piete.Brooks@cl.cam.ac.uk> MSF clock driver, Trimble PARSE support
- [10]Reg Clemens <reg@dwf.com> Oncore driver (Current maintainer)
- [11]Steve Clift <clift@ml.csiro.au> OMEGA clock driver
- [12]Casey Crellin <casey@csc.co.za> vxWorks (Tornado) port and help with target configuration
- [13]Sven Dietrich <sven_dietrich@trimble.com> Palisade reference clock driver, NT adj. residuals, integrated Greg's Winnt port.
- [14]John A. Dundas III <dundas@salt.jpl.nasa.gov> Apple A/UX port
- [15]Torsten Duwe <duwe@immd4.informatik.uni-erlangen.de> Linux port
- [16]Dennis Ferguson <dennis@mrbill.canet.ca> foundation code for NTP Version 2 as specified in RFC-1119
- [17]Glenn Hollinger <glenn@herald.usask.ca> GOES clock driver
- [18]Mike Iglesias <iglesias@uci.edu> DEC Alpha port
- [19]Jim Jagielski <jim@jagubox.gsfc.nasa.gov> A/UX port
- [20]Jeff Johnson <jbj@chatham.usdesign.com> massive prototyping overhaul
- [21]Hans Lambermont <Hans.Lambermont@nl.origin-it.com> or [22]<H.Lambermont@chello.nl> ntpsweep
- [23]Poul-Henning Kamp <phk@FreeBSD.ORG> Oncore driver (Original author)
- [24]Frank Kardel [25]<Frank.Kardel@informatik.uni-erlangen.de> PARSE <GENERIC> driver (14 reference clocks), STREAMS modules for PARSE, support scripts, syslog cleanup
- [26]William L. Jones <jones@hermes.chpc.utexas.edu> RS/6000 AIX modifications, HPUX modifications
- [27]Dave Katz <dkatz@cisco.com> RS/6000 AIX port
- [28]Craig Leres <leres@ee.lbl.gov> 4.4BSD port, ppsclock, Magnavox GPS clock driver
- [29]George Lindholm <lindholm@ucs.ubc.ca> SunOS 5.1 port

- [30]Louis A. Mamakos <louie@ni.umd.edu> MD5-based authentication
- [31]Lars H. Mathiesen <thorinn@diku.dk> adaptation of foundation code for Version 3 as specified in RFC-1305
- [32]David L. Mills <mills@udel.edu> Version 4 foundation: clock discipline, authentication, precision kernel; clock drivers: Spectracom, Austron, Arbiter, Heath, ATOM, ACTS, KSI/Odetics; audio clock drivers: CHU, WWW/H, IRIG
- [33]Wolfgang Moeller <moeller@gwdgv1.dnet.gwdg.de> VMS port
- [34]Jeffrey Mogul <mogul@pa.dec.com> ntpttrace utility
- [35]Tom Moore <tmoore@fievel.daytonoh.ncr.com> i386 svr4 port
- [36]Kamal A Mostafa <kamal@whence.com> SCO OpenServer port
- [37]Derek Mulcahy <derek@toybox.demon.co.uk> and [38]Damon Hart-Davis <d@hd.org> ARCRON MSF clock driver
- [39]Rainer Pruy <Rainer.Pruy@informatik.uni-erlangen.de> monitoring/trap scripts, statistics file handling
- [40]Dirce Richards <dirce@zk3.dec.com> Digital UNIX V4.0 port
- [41]Wilfredo Sánchez <wsanchez@apple.com> added support for NetInfo
- [42]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules
- [43]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory
- [44]Ray Schnitzler <schnitz@unipress.com> Unixware1 port
- [45]Michael Shields <shields@tembel.org> USNO clock driver
- [46]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
- [47]Harlan Stern <harlan@pfcs.com> GNU automake/ autoconfigure makeover, various other bits (see the ChangeLog)
- [48]Kenneth Stone <ken@sdd.hp.com> HP-UX port
- [49]Ajit Thyagarajan <ajit@ee.udel.edu> IP multicast/anycast support
- [50]Tomoaki TSURUOKA <tsuruoka@nc.fukuoka-u.ac.jp> TRAK clock driver
- [51]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver
- [52]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD
- [53]gif
- [54]David L. Mills <mills@udel.edu>

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