

DVR Hardware Manual

Ver. 2017-08

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is Subject to the following two conditions: (1) The device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

■ WARNING

- Unauthorized reproduction of all or part of this manual is strictly prohibited.
- The figures in this manual are for illustration purposes only (may differ from the actual product).
- The specifications and design of the product are subject to change without prior notice for purposes of quality improvement.

■ CAUTIONS

- To get the best use out of the product, be sure to read the cautions before using the product. For safety, please take note of the following.

● Instructions before using the product

1. To prevent electric shock when installing, moving, or opening the DVR and peripheral devices, connect and disconnect the cables as instructed. All cables must be connected to grounded power outlets.
2. If the product is installed near a power outlet, make sure it can be unplugged easily.
3. Do not use the DVR in water or in wet places.
4. Keep the plastic packing materials used for the DVR or other peripheral devices out of reach of children (may cause suffocation).

● Installation Environment of the product

1. Maintain the following conditions: operating temperature of 5°C ~ 40°C; operating humidity of 10% ~ 80%.
2. Install the DVR in a safe place that is free from external vibration.
3. Install the DVR in a well-ventilated place.
4. To protect the hard disk from data loss and breakdown, install the DVR away from magnetic materials.
5. When using a rack other than the standard one, use a separate table with sufficient spacing, i.e., 60cm from the floor, 50cm from the ceiling, and 20cm from the side and back walls and other objects.

● Safety Notes on the Product

1. When installing additional boards and HDD, separate the power cable and turn OFF power supplied to the DVR completely.
2. Keep the product away from heat-generating devices such as heaters.
3. Do not use a damaged power cord.
4. To prevent problems due to magnetic interference and electric surge, use only grounded cables and power outlets.
5. If the power cord is connected, do not touch the power unit. If the power cord is connected, electric current is still flowing internally even after the switch is turned OFF.
6. Do not place a heavy object on top of the product.
7. Do not drop a conductive object in the ventilation holes.
8. Allot sufficient space for system cabling.
9. Use only the parts indicated in the manual. Do not disassemble, repair, or modify the product without permission.
10. Incorrect system setup may cause malfunction.
11. Shut down the system normally as instructed in the manual.

● Safety Notes on the Lithium Battery

1. Replace lithium batteries as instructed to avoid danger.
2. Dispose used lithium batteries properly.

【Warning and Caution are indicated as follows.】





 Warning	Possible injury or product damage.
 Caution	Risk of minor injury or product damage.
	Cautions for the usage of the product.
	Information for the usage of the product.

Table of contents

Chapter 1. Introduction	4
1 - 1 Definition of maunal terms	4
1 - 2 Major Features	4
.....	4
.....	5
.....	6
.....	6
.....	8
.....	8
1 - 2 - 7 Blue Major Features	10
1 - 2 - 8 Blue Components	10
.....	12
.....	13
Chapter 2. Installation and Connection	14
2- 1 Names and Features of Each Parts	14
.....	14
.....	16
.....	19
2- 1 - 4 Blue Installation and Connection	22
.....	26
Chapter 3. Operation and Setup	29
.....	29
.....	30
3- 3 Blue series front panel	31
.....	32
3- 5 Remote controller	33
3- 5 - 1 Remote controller A-Type	33
3- 5 - 2 Remote controller B-type	35
3- 6 Mouse	35
3- 7 Jog/Shuttle	36
Chapter 4. DVR HDD Installation	37
.....	37
.....	38
4- 3 Blue series HDD installation	39
.....	40
A/P/P/E/N/D/I/X	42
HDD Compatibility list	42
Recommended PTZ Camera Protocol	42

Chapter 1. Introduction

1 - 1 Definition of maunal terms

Blue	DVR with 3 HDD Bays (Max 6TB per HDD supported)
Non PoE	Without PoE

1 - 2 Major Features

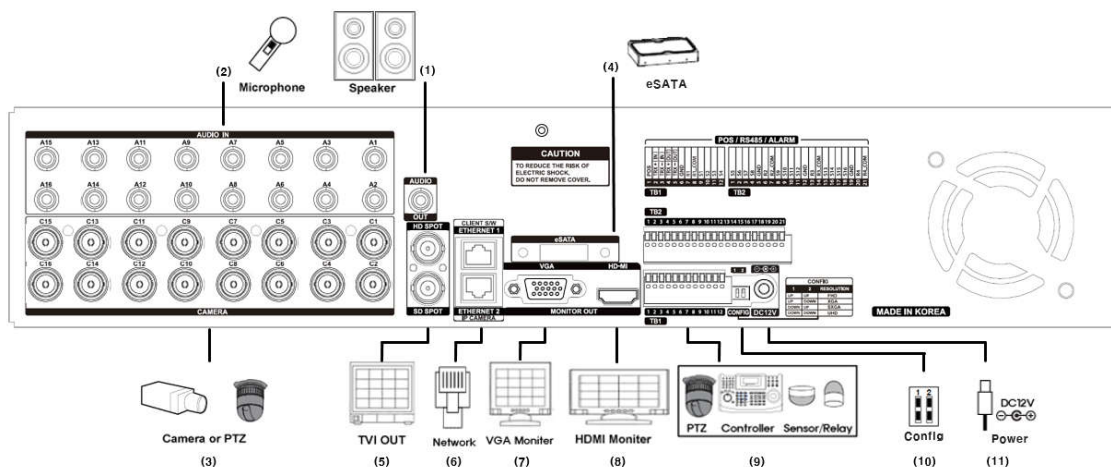
1 - 2 - 1 Kute Major Features

1 - 2 - 7 Blue Major Features

Line Up		7brid DVR (HD-SDI, EX-SDI, TVI, AVI, CVI, 960H, IPC)		
Channels		16CH		
System	OS	Embedded Linux		
	Control	Mouse, Remote controller, Network		
	Hexaplex	Realtime monitoring, Recording, Playback, Backup, Network, Setup		
	Upgrade	USB2.0 Memory(FAT 32) Network		
Video	Video Input	16 BNC, 8 IPC		
	Video Output	1 HD-MI, 1 VGA, 2 BNC(TVI,CVBS)		
Audio	Audio Input	4 RCA		
	Audio Output	HD-MI, RCA		
Video Recording	Compression	H.264		
	Recording Speed	Max. 30 fps/ch		
	Resolution	Max. UHD(4K) / TVI, IP		
	Event	Motion, Sound Detection		
	Recording Quality	5 Levels		
Audio Recording	Compression	G.711U		
	Audio Sampling Rate	8KHz		
Network	Network Connection	2 x Ethernet 10/100/1G		
	Compression	H.264 / JPEG		
	Speed	Max. 1080p 20fps		
	Resolution	Max. 1080p		
Backup	Backup/Download	USB2.0, Network		
	Format	Video clip(rms, avi), JPEG still image, Log list, Setup data		

Alarm	Pre/Post-Alarm	5sec / 5sec~5min		
	Alarm Action	E-mail, Event Popup, Buzzer, PTZ Preset Relay, Spot, Remote CMS, Front LED		
	Input/Output	4/1 – NC/NO		
Display	HD-MI	UHD, FHD, SxGA, XGA		
	VGA	UHD, FHD, SxGA, XGA		
	Spot	HD spot, SD spot		
	Mode	24/16/8/4/1/SEQ- LIVE, 24/16/8/4/1 –P.B.		
External Interface	PTZ / Keyboard	2 RS485 - Terminal Block		
	ATM / POS	RS232C - Terminal Block / Ethernet POS		
Storage	Internal Device / External Device	3 HDD, 1 eSATA,		
	ODD	DVD R/W		
Features	DDNS, DHCP, UPNP	Yes		
	VMS, RMS	Windows		
	Smartphone (3G/4G)	Android, iPhone, iPad		
	Mac Viewer	Apple Mac OS		
General	Power Supply	12V/5A		
	Consumption	60 Watts		
	Dimension	430 x 86 x 270 mm		

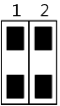
1 - 2 - 8 Blue Components



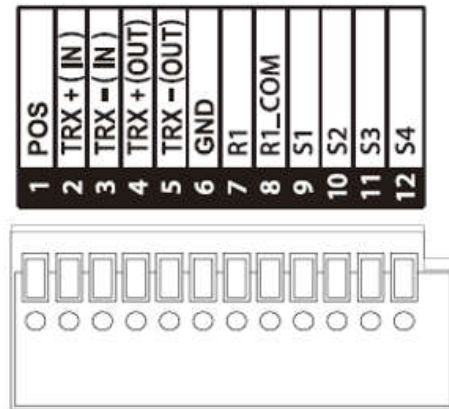
[Figure 82 Blue 16CH Installation and Connection]

No.	Name	Features	Device can be conneted	Type
1	AUDIO OUT	Audio output (Line-out)	Speaker	RCA
2	AUDIO IN	Audio input (16CH)	Mic	RCA
3	CAMERA IN	Video camera	CCTV Camera	BNC
4	e-SATA	External SATA	e-SATA	e-SATA
5	FHD SPOT SD SPOT	FHD SPOT(TVI Output) SD SPOT(CVBS Output)	TVI Input Device	BNC
6	ETHERNET	Ethernet 10/100/1G Base-T UP : CLIENT S/W DOWN : IP CAMERA	LAN cable IP CAMERA	RJ-45
7	VGA-OUT	VGA or LCD Monitor	VGA Monitor	D-SUB 15P
8	HD-MI	HD-MI Output	HD-MI Monitor	HD-MI
9	Terminal Block	RS-485 / SENSOR IN / RELAY OUT / POS	PTZ Camera	Terminal Block
10	CONFIG	RESOLUTION Setting UHD/FHD/XGA/SXGA		DIP S/W, 2-pin
11	Power	DC 12V	Power Adapter	DC Jack

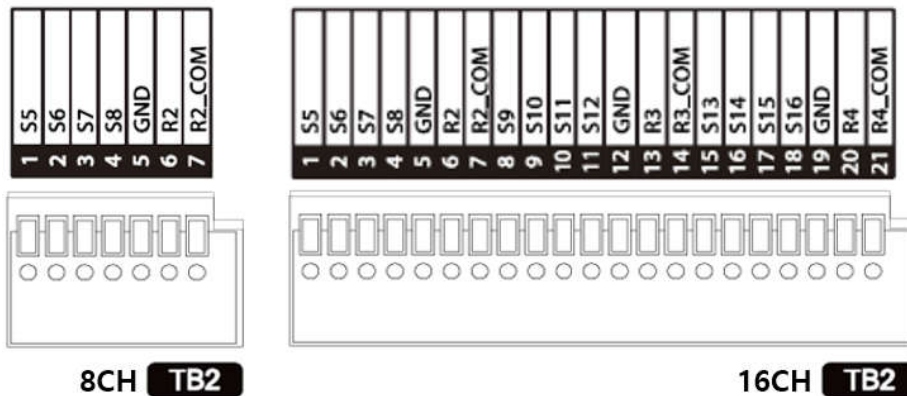
■ Config Switch Setting

	Switch 1	Switch 2	RESOLUTION
	UP	UP	FHD
	UP	DOWN	XGA
	DOWN	UP	SXGA
	DOWN	DOWN	UHD

■ 터미널 블록



[Figure 93 Blue Series TB1 Terminal Block Description]



[Figure 14 Blue Series 8CH/16CH TB2 Terminal Block Description]

This is Terminal Block located at the rear to control PTZ, Sensor, Relay and POS features.

- ① PTZ camera/ Keyboard Controller
 - A. PTZ cameras can be input to the Terminal block No. 4&5&6(GND). You can see the compatibility list of PTZ camera from APPENDIX of this manual.
 - B. Keyboard Controller can be connected to the Terminal block No. 2&3.



PTZ might be not working perfectly if there is no connection for GND

- ② Sensor / Relay / POS

	Sensor and Relay type NC(Normal Close): Normal close and Event open NO(Normal Open): Normal open and Event close
--	--

- A. Sensor connection
 - I. Sensors can be input to the Terminal Block S1 ~S6.
 - II. It can be connected regardless of channel numbers.
- B. Relay connection
 - I. Relay can be input to the Terminal Block R1~R4.
 - II. Relay can be connected to the Alarm action devices like Siren or Light bar.
- C. POS connection
 - I. POS (RS-232c) can be input the Terminal Block No. 1

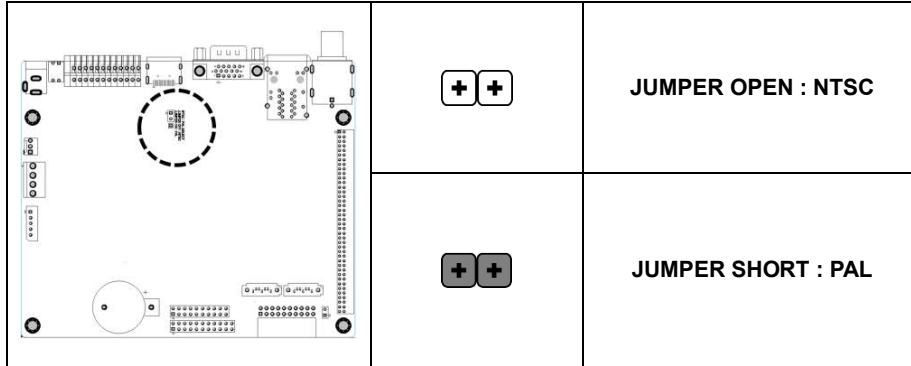


Please note that relay might be not working depending on the types. In this case, power supply has to be connected to the relay.

■ NTSC/PAL Setting

Open the top case of DVR then change the setting with “2pin Jumper” on the board.

NTSC / PAL SELECT Direction : JP2	The way of setting
--------------------------------------	--------------------

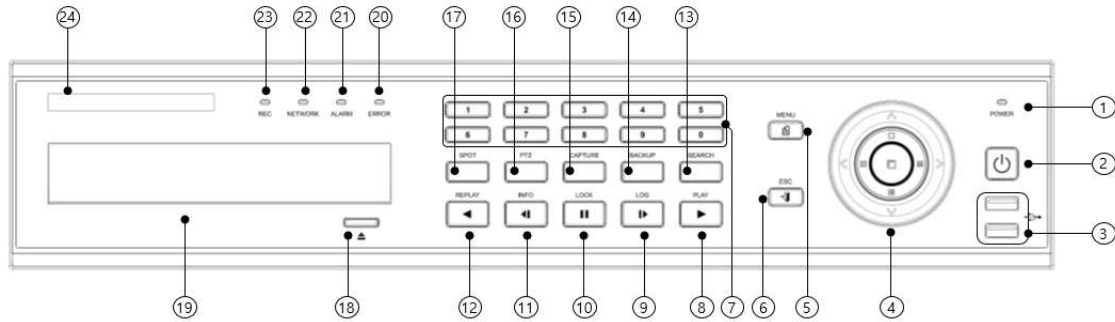


Please don't change this setting without any reason as we provide the products with correct setting normally.

Chapter 3. Operation and Setup

DVR can be controlled easily by Front panel, Remote controller, Mouse.

3-3 Blue series front panel



No.	Name	Function
1	POWER LED	System power LED
2	POWER	Power on/off
3	USB	USB mouse, USB memory stick
4	MOVE & DISPLAY	Moves from one category to another or changes the display mode
5	MENU	Various modes
6	ESC	Exit the current menu or selects the upper menu
7	NUMBER	Channel Selection or Number Input
8	Forward Play / Fast Forward & PLAY	Playback/Fast Forward (in the Playback Mode) Play back (in the Monitoring Mode)
9	Forward Frame by Frame & LOG	Playback Frame by Frame (in the Playback Mode) System Log View(in the Monitoring Mode)
10	Pause & LOCK	Pause (in the Playback Mode) Lock (in the Monitoring Mode)
11	Reverse Frame by Frame & STATUS	Backward Playback Frame by Frame (in the Playback Mode) View System Configuration (in the Monitoring Mode).
12	Reverse Play / Fast Reverse & RELAY	Backward Playback/Rewind (in the Playback Mode) Relay Control (in the Monitoring Mode)
13	SEARCH	Search the recorded Image.
14	BACKUP	Save the recorded image at other media.
15	CAPTURE	Capture the displaying image into USB
16	PTZ	Pan/Tilt/Zoom control
17	SPOT	Spot Control
18	Eject	CD, DVD Media
19	ODD	CD-RW, DVD-RW
20	ERROR LED	Fan, Recording error indication LED
21	ALARM LED	Event, Motion indication LED
22	NETWORK LED	Remote connection indication LED
23	RECORD LED	HDD operation indication LED
24	LABEL	Badge space to be shown model number or brand

3-5-2 Remote controller B-type



① Basic Control Button

	POWER	Not Supported
	MODE	Not Supported
	FULL	1ch mode
	QUAD	4ch mode
	9 SPLIT	9ch mode
	16 SPLIT	16ch mode (if you press more, it will be extend like 24ch mode...so on)
	SEQ.	Sequce Mode ON/OFF

② System operation and setup button

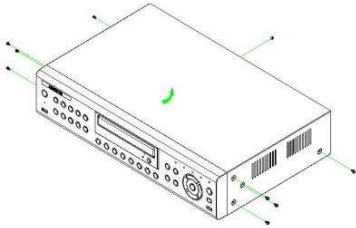

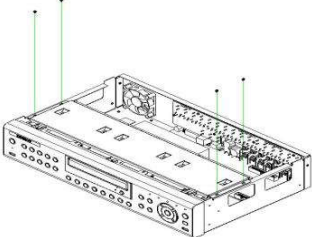
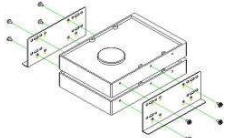
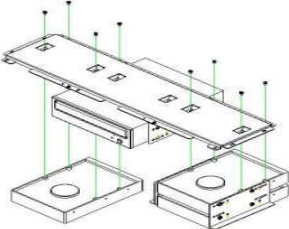
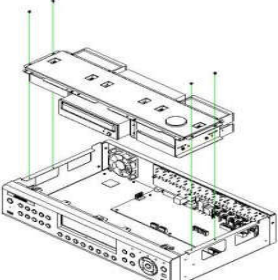
	MENU	Reording, Schedule, System setting
	ESC	Exit the current menu or Move to the upper menu
	PREV	Backward by frame
	PAUSE	Pause
	FORWARD	Forward by frame
	BACKWARD	Backward palyback
	PLAY	Playback

3-6 Mouse

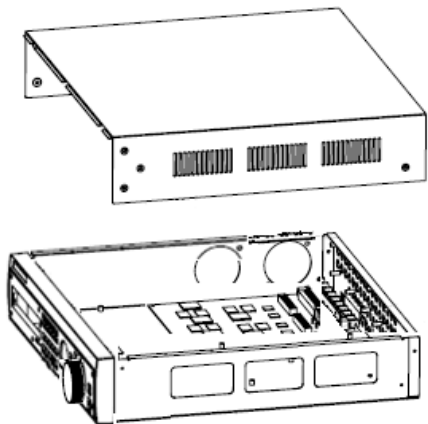



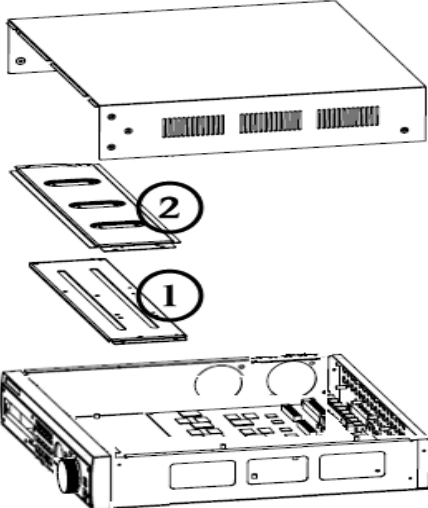
USB mouse point will be shown after connecting to the DVR.

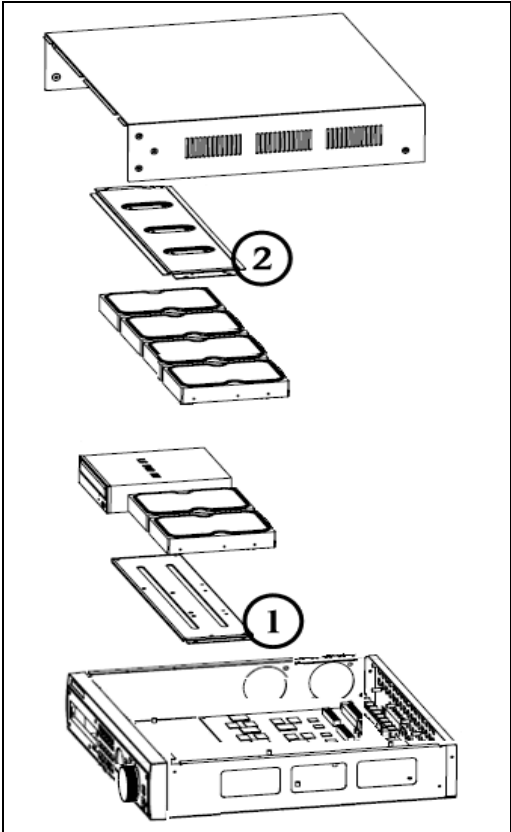
	Click on the right button	Monitoring Mode / Move from Play Mode to Monitoring Menu / Pop up or remove Play Menu. Show sub-folder of the certain Menu window.
	Click on the left button	Select Menu.
	Double click on the left button	Select Menu.
	Click the left button and drag	Move a certain window.

Chapter 4. DVR HDD Installation

	<p>※ Step 1</p> <p>1) Open the top case by using screw driver.</p> <div style="border: 1px solid black; padding: 5px;">  <p>Caution</p> <p>1) Normal termination of the system and fully unplugged power code are required before conducting HDD installation. 2) Touch a grounded metal substance or ground yourself before installing HDD in order to reduce static electricity. Static electricity may cause a malfunction of the product. 3) After installing HDD, Do not connect to power supply with the top case opened. The top case must be covered before usage.</p> </div>
	<p>※ Step 2</p> <p>2) Unscrew and separate the HDD bay from body.</p>
	<p>※ Step 3</p> <p>3) Screw the HDDs to the HDD bay.</p>
	<p>※ Step 4</p> <p>4) As per the photo, Screw the HDD bay, HDD and DVD to the top bay.</p>
	<p>※ Step 5</p> <p>5) Connect the power cable and data cable on HDDs and then reassemble the top case by reversing 1) to finalizing HDD installation.</p>

4- 4 Deluxe series HDD installation

	<p>※ Step 1</p> <p>1) Using a screw driver, unscrew and take off the top case of the product.</p> <table border="1" data-bbox="722 508 1404 640"><tr><td data-bbox="722 508 820 640"> Caution</td><td data-bbox="820 508 1404 640"><p>1) Normal termination of the system and fully unplugged power cord are required before conducting HDD installation.</p><p>2) After installing HDD, Do not connect to power supply with the top case opened. The top case must be covered before usage.</p></td></tr></table>	 Caution	<p>1) Normal termination of the system and fully unplugged power cord are required before conducting HDD installation.</p> <p>2) After installing HDD, Do not connect to power supply with the top case opened. The top case must be covered before usage.</p>
 Caution	<p>1) Normal termination of the system and fully unplugged power cord are required before conducting HDD installation.</p> <p>2) After installing HDD, Do not connect to power supply with the top case opened. The top case must be covered before usage.</p>		
	<p>※ Step 2</p> <p>2) Using a screw driver, unscrew the fixing bolt of the top HDD bay ② and separate the top HDD bay ② from the body.</p> <p>3) Using a screw driver, unscrew the fixing bolt of the bottom HDD bay ① and separate the bottom HDD bay ① from the body.</p>		



※ Step 3

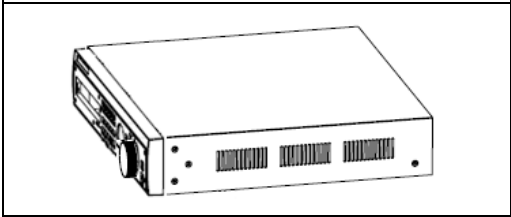
4) Align screw holes and screw and fix HDD onto the bottom HDD bay①.

5) Align screw holes and screw and fix HDD onto the top HDD bay②

6) By reversing Step 2, combine both top② and bottom① HDD bay with the body.



1) HDD power and data terminal should face the inner direction.



※ Step 4

7) Reassemble the top case by reversing 1) to finalizing HDD installation.

APPENDIX

A/P/P/E/N/D/I/X

HDD Compatibility list

Maker	Brand	Model Name	Capacity	Cache	Start-up Current (12V typical, A)	R/W Power Average	RPM	Operation Temperature	Model which is not compatible with
Western Digital	WD Purple	WD100PURZ	10TB	256MB	1.8A	6.2W	5400	0°C~65°C	<u>Kute</u> / Blue / 5brid-C
		WD80PURZ	8TB	128MB	1.8A	6.4W	5400	0°C~65°C	<u>Kute</u> / Blue / 5brid-C
		WD60PURZ	6TB	64MB	1.75A	5.3W	5400	0°C~65°C	
		WD40PURZ	4TB	64MB	1.75A	5.1W	5400	0°C~65°C	
		WD30PURZ	3TB	64MB	1.725A	4.4W	5400	0°C~65°C	
		WD20PURZ	2TB	64MB	1.725A	4.4W	5400	0°C~65°C	
		WD10PURZ	1TB	64MB	1.2A	3.3W	5400	0°C~65°C	
Seagate	<u>SkyHawk</u>	ST1000VX0004	10TB	256MB	1.8A	6.8W	7200	0~70°C	<u>Kute</u> / Blue / 5brid-C
		ST8000VX0022	8TB	256MB	2.0A	9W	7200	0~70°C	<u>Kute</u> / Blue / 5brid-C
		ST6000VX0023	6TB	256MB	2.0A	9W	7200	0~70°C	<u>Kute</u> / Blue
		ST4000VX007	4TB	64MB	1.8A	5.5W	5900	0~70°C	
		ST3000VX010	3TB	64MB	1.8A	5.6W	5900	5~70°C	
		ST2000VX008	2TB	64MB	1.8A	5.6W	5900	5~70°C	
		ST1000VX005	1TB	64MB	1.8A	5.6W	5900	5~70°C	

Recommended PTZ Camera Protocol

NO	Vendor	Model	Protocol
1	HONEYWELL	SCANDOME2	HSDN-251
2	LG	LG	LG_MULTIX,
			LG_OLD
3	PANASONIC	WVCS854	WVCS854
4	PELCO	PELCO	PELCO – D
			PELCO - P
5	SAMSUNG TECHWIN	SAMSUNG	SPD-1600
			SCC641
6	HITRON	FASTRAX2	FASTRAX2
7	COAX	COAX_OSD	UTP/Coaxitron OSD
		COAX_PTZ	UTP/Coaxitron PTZ