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Please find attached the related material on Project

For your convenience, the below describes the related updates:

E158873-A6267-DescriptionUL
Figure-17-Total

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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Listing
CCN:	AZOT, AZOT7 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	VMS(Video Management Software) Appliance
Model:	BRB-X1610SE, BRB-X1610E
Rating:	INPUT: AC100-240 V~, 50/60 Hz, 1.8 A (Model: BRB-X1610SE), AC100-240 V~, 50/60 Hz, 0.72 A (Model: BRB-X1610E) OUTPUT: Each PoE 52 Vdc, Max 0.58 A, Total: Max 1.92 A, Class 2 (Model: BRB-X1610SE)
Applicant Name and Address:	HANWHA VISION CO LTD 6, PANGYO-RO 319BEON-GIL, BUNDANG-GU SEONGNAM-SI GYEONGGI-DO 13488 KOREA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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Prepared By: Sohyun Lee / Project Handler Reviewed By: Seungtae Kim / Reviewer

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

- i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
- ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
- iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

VMS(Video Management Software) Appliance. This unit consists of R/C (QQJQ2/8) power supply, DC Fan, main board, maximum 2 hard disk-drives (optional) and numerous components mounted on PWB.

It is professional equipment and for use in locations where it is unlikely that children will be present.

Model Differences

BRB-X1610SE is basic model.

BRB-X1610E is identical to the basic model except for PoE ports, ratings, model designation.

Test Item Particulars

Product group	end product
Classification of use by	Ordinary person
Supply Connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection – type	pluggable equipment type A - appliance coupler
Considered current rating of protective device	20 A; Location: building
Equipment mobility	movable stationary
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	40
IP protection class	IPX0
Power systems	TN
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	Max. 4.10 kg (with HDD 2 EA)

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : 40 °C
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-10%
- The equipment disconnect device is considered to be : Appliance inlet
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : All accessible connectors
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

4791881671

- Testing of VMS(Video Management Software) Appliance, Model: BRB-X1610SE, BRB-X1610E were not considered necessary based upon previous evaluation under CB Scheme. The CB Scheme Test Certificate Ref. No. DK-172251-UL dated 2025-10-24 and Report Ref. No. C25IA023-M0A0 dated 2025-10-17 were prepared by UL Solutions (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK.

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's Company's name, Trade Name, File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, frequency, current) Output Ratings (voltage, dc, current)
Class I equipment -Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal  (IEC 60417-5019)
Equipment for use in location where children are not likely to be present	"This equipment is not suitable for use in locations where children are likely to be present" (Instruction) or equivalent
Hard Copy	A. IMPORTANT B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL (https://www.~~) or QR code.

SCC requirement	If the signal words DANGER, WARNING, and CAUTION are included, a French manual is provided.
Special Instructions to UL Representative N/A	

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
N/A	N/A	N/A	N/A	N/A	N/A	N/A
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	N/A					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	N/A					
BD1.4	Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.					
	N/A					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	N/A	N/A	N/A	N/A	N/A

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Power supply (SMPS)	DELTA ELECTRONICS INC	DPS-200AB-225 XX (X = 0-9, A-Z or blank)	Input: 100-240 V~, 50- 60 Hz, 3.5 A; Output: +12 V, 5 A; +52 V, 2.7 A; or +54 V, 2.7 A; Max. output power 200 W	QQJQ2/ QQJQ8	UL (E131881)	
Power cord set	Interchangeable	Interchangeable	Detachable, Min. 1.5 m, Max. 2.4 m long, rated 125 V, 10 A, 18/3 AWG, 60 deg. C, SVT type flexible cord. One end with NEMA 5-15P the other end with appliance coupler.	ELBZ/ELBZ7	UL	
Power cord set - Alternate	Interchangeable	Interchangeable	Detachable, Min. 1.5 m, Max. 2.4 m long, rated 125 V, 7 A, 18/3 AWG, 105 deg. C, SVT type flexible cord. One end with NEMA 1-15 the other end with appliance coupler.	ELBZ/ELBZ7	UL	
Case-Top (Metal)	Interchangeable	Interchangeable	SECC, Min. 0.6 mm thickness, See enclosure for more dimension.	-	Tested in equipment	
Case-Bottom (Metal)	Interchangeable	Interchangeable	SECC, Min. 0.8 mm thickness, See enclosure for more dimension.	-	Tested in equipment	
Case-Rear (Metal)	Interchangeable	Interchangeable	SECC, Min. 0.8 mm thickness, See enclosure for more dimension.	-	Tested in equipment	

Front Filter Cover (Plastic)	LOTTE CHEMICAL CORPORATION	HN-1068(f1)	Min. 2.5 mm thickness, rated Min. V-0, 130 deg. C	QMFZ2	UL (E115797)	
Line-Filter (T9)	TNC CO., LTD	CV650050SKA	5.0 mH, 120 deg. C	-	Tested in equipment	
USB Protection IC (USB 3.0: U20, U73 / USB 2.0: U18, U8)	DIODES INC	AP2182A (Type: AP2182ASG-13)	Rated 2.7–5.5 Vdc, 1.5 A	QVGS2	UL (E322375)	
DC Fan (Mainboard and Side)	SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD	HA40101V4-1(Y) (Type: HA40101V4-1000U-A99)	Rated voltage: DC 12 V, Rated current: Max. 0.37 A	GPWV2	UL (E77551)	
Lithium Battery (J2E1)	WUHAN LIXING (TORCH) POWER SOURCE CO LTD	CR2032	Non-rechargeable, Lithium/manganese dioxide (Coin), Max. abnormal charging current: 10 mA, Max. abnormal charging voltage: 5 Vdc	BBCV2	UL (MH26236)	
Reverse Current Protection Circuit for Lithium Battery (CN24)	Interchangeable	Interchangeable	Diode (D20, Max reverse voltage 40 V, Max reverse current 5 uA) and resistor (R1R6, 1.0 kohm) in series.	-	Tested in equipment	
Heatsink	Interchangeable	Interchangeable	Aluminum, Approx. overall size of 40.0 by 40.0 by 17.5 mm, Min. 0.5 mm thickness, secured on PWB by soldering, See enclosure for more dimension.	-	Tested in equipment	
HDD (Max. 2 EA) (Optional)	Interchangeable	Interchangeable	Rated 5 Vdc, 0.7 A and 12 Vdc, 0.9 A	AZOT2	UL	
HDD (Max. 2 EA) (Optional) - Alternate	Interchangeable	Interchangeable	Rated Max. 12 Vdc	AZOT2	UL	

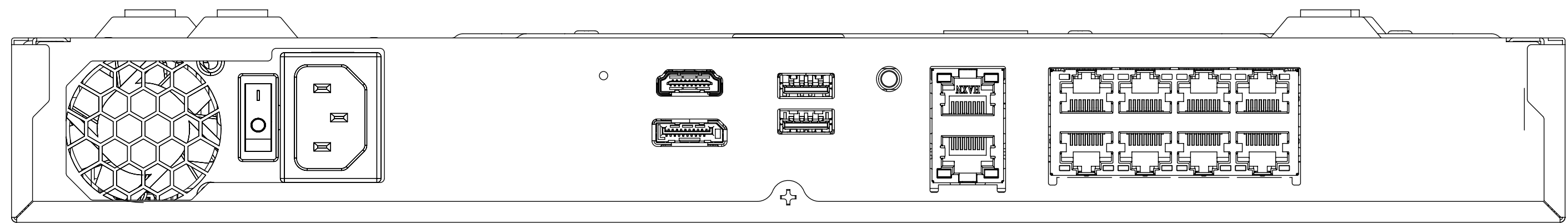
PWB	HANNSTAR BOARD CORP	MV-4	Min. V-0, 130 deg. C	ZPMV2	UL (E89382)	
PWB - Alternate	EXPRESS ELECTRONICS LTD	14MV0	Min. V-0, 130 deg. C	ZPMV2	UL (E157925)	
PWB - Alternate	KI JOO INDUSTRIAL CO LTD	KJ3-V-0-1	Min. V-0, 130 deg. C	ZPMV2	UL (E111636)	
PWB - Alternate	Interchangeable	Interchangeable	Min. V-0, 130 deg. C	ZPMV2	UL	
Label	Interchangeable	Interchangeable	Suitable for use on each type of surface to which applied, rated for maximum and minimum surface temperature specified, or Min. 40 deg. C if not specified.	PGDQ2 or PGJI2	UL	

Enclosures

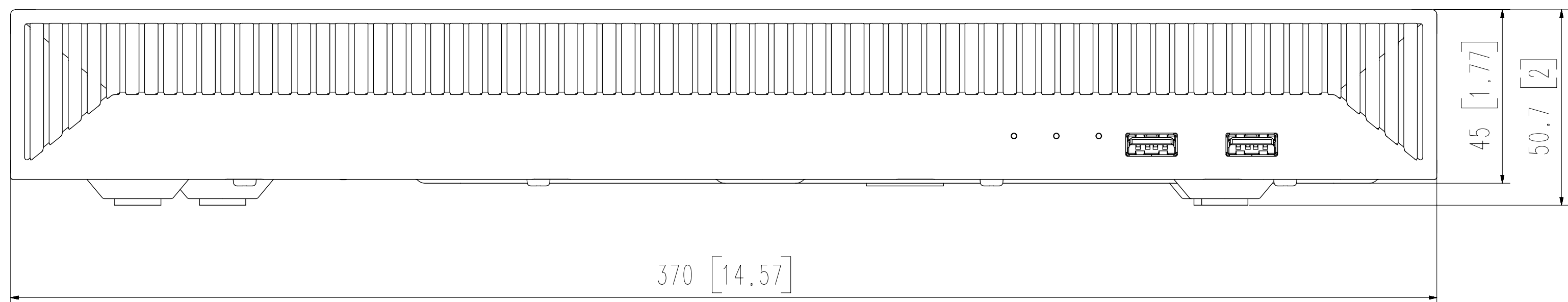
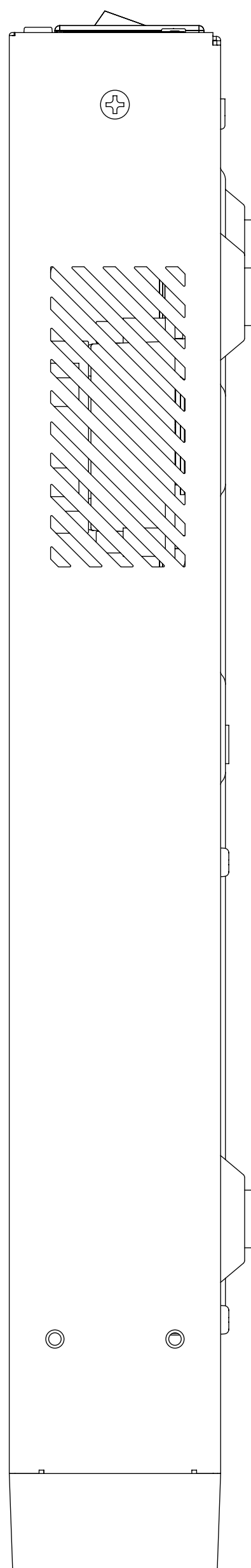
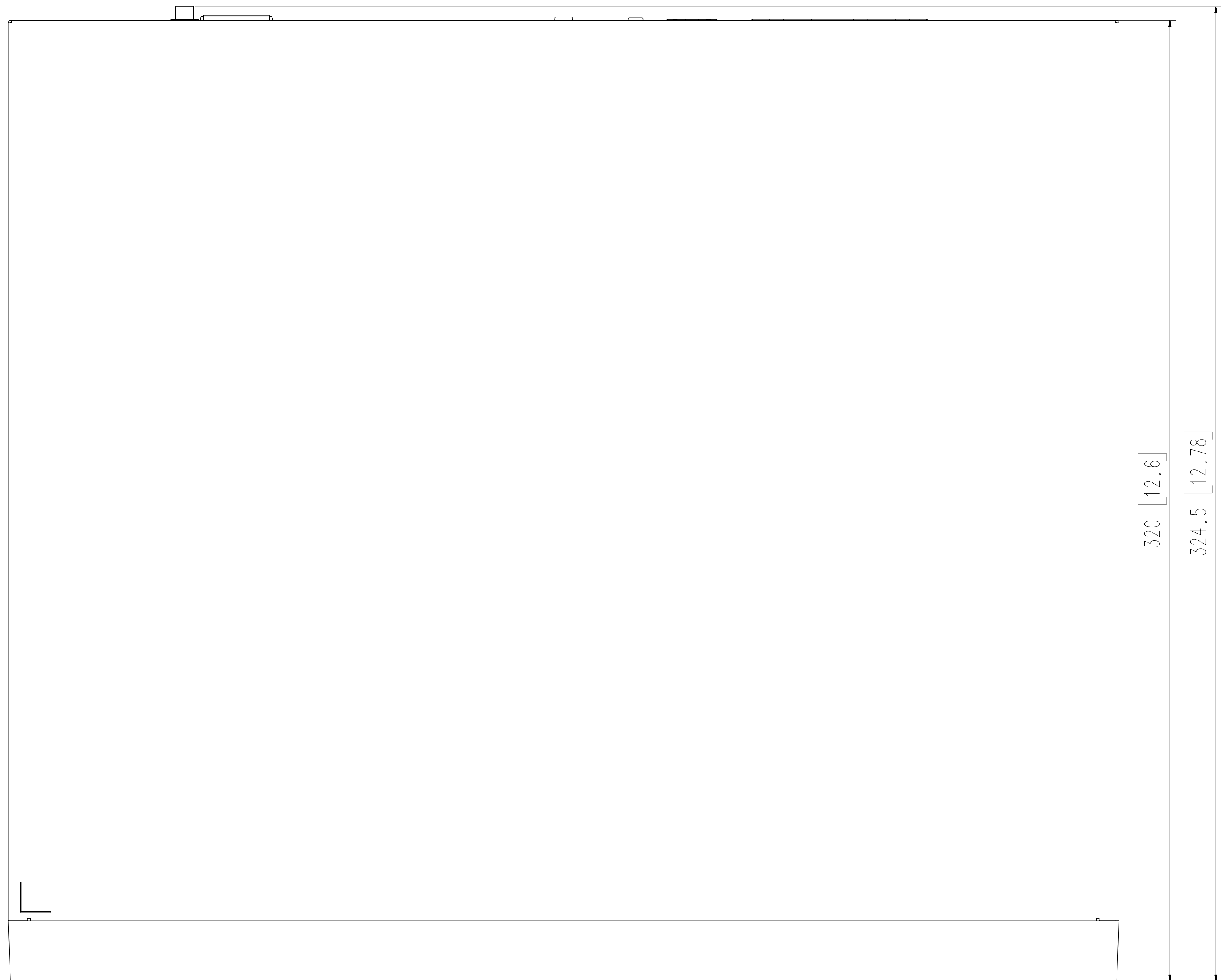
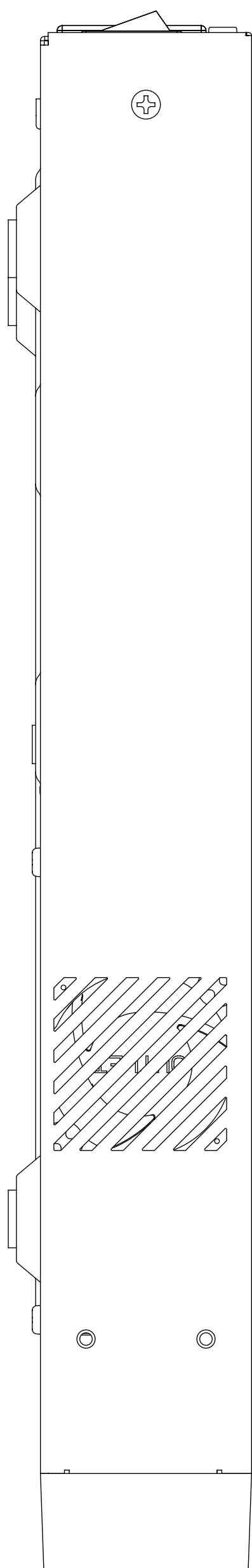
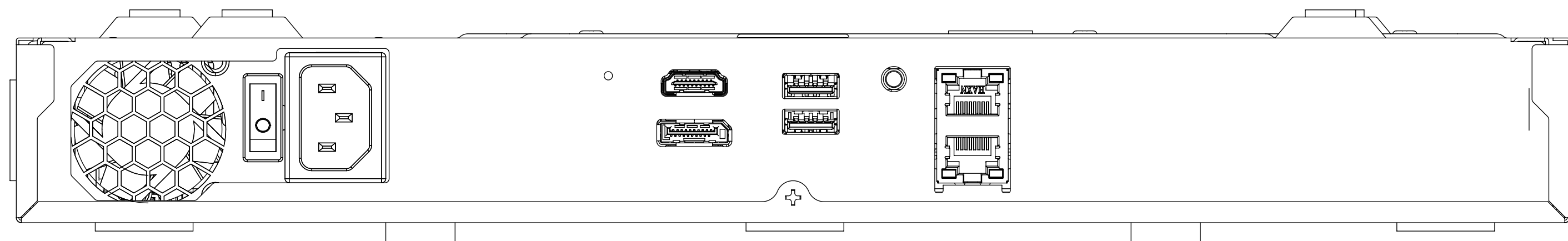
Type	Supplement Id	Description
Photographs	03-01	External view - 1
Photographs	03-02	External view - 2
Photographs	03-03	Front view
Photographs	03-04	Rear view
Photographs	03-08	Internal view
Photographs	03-10	Mainboard Top view
Photographs	03-11	Mainboard Bottom view
Photographs	03-16	Front USB board view
Photographs	03-17	SMPS External view (Type: DPS-200AB-225 XX)
Photographs	03-18	SMPS Internal view (Type: DPS-200AB-225 XX)
Photographs	03-19	DC Fan - Mainboard and Side (Type: HA40101V4-1(Y))
Photographs	03-20	Hard-disk (HDD) view
Diagrams	04-01	Enclosure drawings
Diagrams	04-03	Heatsink drawings
Manuals	06-01	Manual
Miscellaneous	07-02	Label
Miscellaneous	07-03	Line-filter (T9) Specification

The following Page(s) are related to Diagrams-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

BRB-X1610SE



BRB-X1610E



3		
2		
1	BRB-X1610SE / BRB-X1610E	'25.08.05
No.	MODEL NAME	DATE
Unit:mm[inch] SCALE:1/1		Hanwha Vision

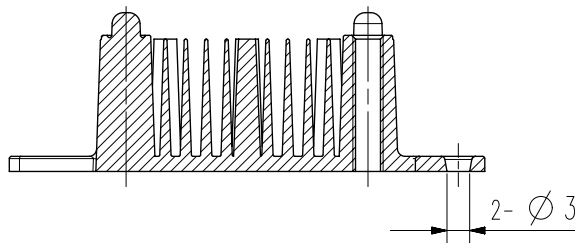
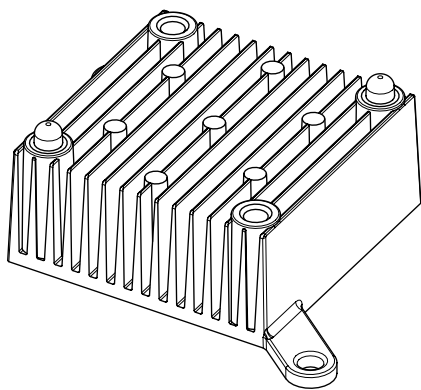
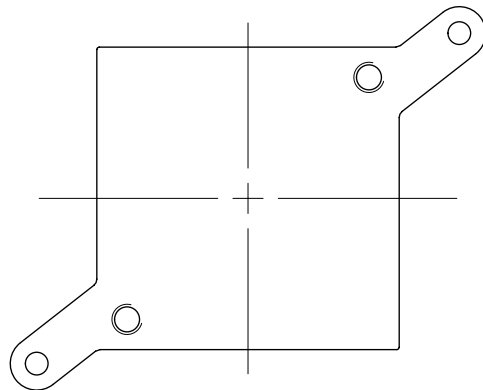
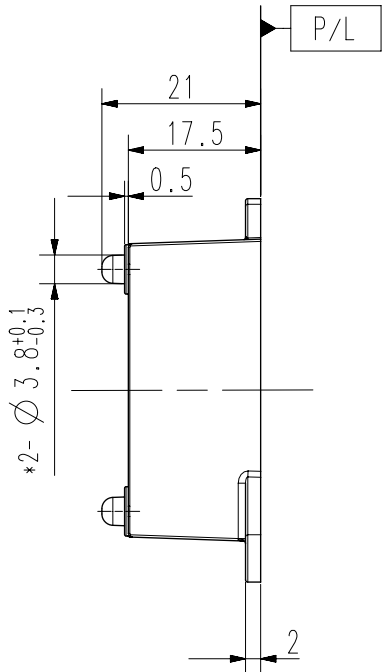
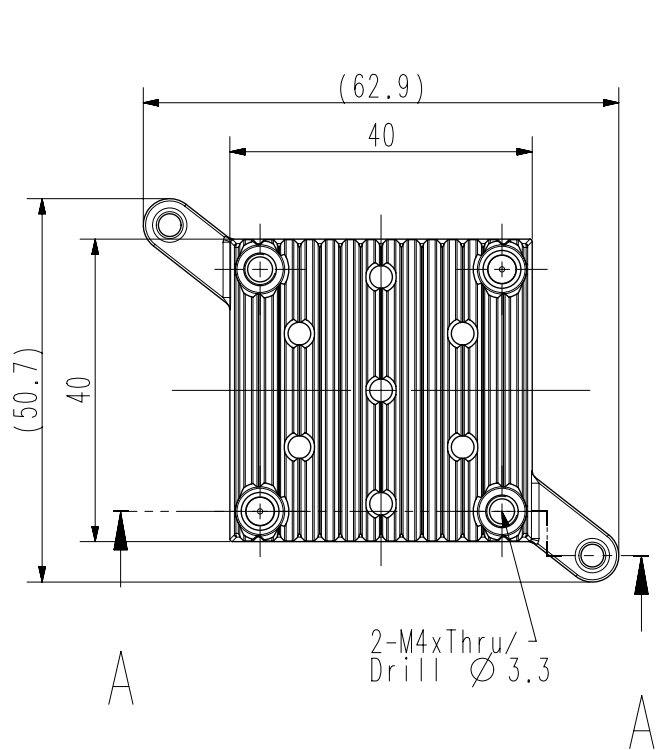
The following Page(s) are related to Diagrams-03. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

This parts should not contain any substances which are specified in AH60-0033K

NO	PART NAME	CODE NO.	MATERIAL	Q'TY	REMARK
1	HEAT-SINK	EP07-002018A	ADC12	1	-

Coating Specification

Process	Casting→Cutting→Sanding→Machining/Tapping→Degrease →Chromate
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SECTION A-A

NOTE:Die-Casting

1. Material and Basic wall thickness : ADC, t2.0
2. Gate, P/L, Ejector Pin location must be handled with HVC designer.
3. Ejector pin stain must be less than 0.3 depth (凹), no flash is allowed.
4. Undescribed edge round must be less than R0.5, undescribed corners must be less than R0.3.
5. No Deformation, Air bubble, Shrinkage is allowed.
6. Every Flash on P/L must be less than 0.1.
7. Undescribed draft angles must be less than 0.5°.
8. * marks (Key dimensions) must be carefully handled.
9. Surface cutting level of Gate and Over-Flow must be equivalent with other surface cutting level.
10. Part Name, Code Number, Mold Number, Material, Model Name must be carved on the inner side of the part.
 - Location and Specs. must be handled with HVC designer.
11. External look and printing specification must follow separately distributed Design Specification data.
 - Including Surface cutting, Chromate, Sanding, Spray, Silk Print specifications.
12. Reliability must satisfy HVC standards.
13. Delivery packing specifications must be discussed separately.
14. All other issues must be handled with HVC designer.

STANDARD TOLERANCE

DIV	Lvl 1	Lvl 2	Lvl 3	Lvl 4	Lvl 5
0-16	±0.05	±0.1	±0.1	±0.2	±0.3
16-63	±0.05	±0.1	±0.2	±0.3	±0.4
63-250	±0.1	±0.2	±0.3	±0.4	±0.4
250-1000	±0.2	±0.3	±0.4	±0.5	±0.6



A3

CHANGE

Update dimensions
(24.03.18 CHB.LEE)

UNIT	mm	DESIGN	CHECK	APPROVAL	PART NAME	HEAT-SINK
		CHB.LEE		MH.PARK		
SCALE	1 / 1				MODEL NAME	WRN-2010S
		24.03.11		24.03.11		
 Hanwha Vision					CODE NO.	EP07-002018A

The following Page(s) are related to Manuals-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

VMS(Video Management Software) Appliance

Product Specification Manual

BRB-X3210S1E
BRB-X32101E
BRB-X1610SE
BRB-X1610E

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.
- 15) Do not allow children to access or operate this device. This is professional equipment and must be used only by qualified personnel.



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.
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



- This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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 Vision retains the copyright on this manual.
- This manual cannot be copied without Hanwha Vision'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."



- Do not place the battery under direct sunlight or near a heat source, such as a heater.
(eg. leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas;)

Moving fan blades

- Keep body parts away from fan blades.

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.
- 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.
- 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.
- Do not ingest battery, Chemical Burn Hazard.
- This product contains a coin / button cell battery. If the coin / button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.

- Keep new and used batteries away from children.If the battery compartment does not close securely, stop using the product and keep it away from children.
If you think batteries might have been swallowed or placed inside any part or the body, seek immediate medical attention.

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.
- Ne pas ingérer la pile, risque de brûlure chimique.
- Ce produit contient une pile de type bouton/pièce de monnaie. Si la pile de type bouton/pièce de monnaie est avalée, elle peut causer de graves brûlures internes en seulement 2 heures et peut entraîner la mort.
- Gardez les piles neuves et usagées hors de portée des enfants. Si le compartiment de la pile ne se ferme pas correctement, cessez d'utiliser le produit et gardez-le d'atteinte des enfants.
Si vous suspectez que des piles ont été avalées ou insérées dans une partie du corps, consultez un médecin sans tarder.

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.

Products supporting each feature

Function	Products
Fan	BRB-X3210S1E/BRB-X32101E/BRB-X1610SE/BRB-X1610E
AI compatible function	BRB-X3210S1E/BRB-X32101E/BRB-X1610SE/BRB-X1610E
Joystick	BRB-X3210S1E/BRB-X32101E/BRB-X1610SE/BRB-X1610E
Extended monitor	BRB-X3210S1E/BRB-X32101E/BRB-X1610SE/BRB-X1610E
Failover	BRB-X3210S1E/BRB-X32101E/BRB-X1610SE/BRB-X1610E
PoE	BRB-X3210S1E/BRB-X1610SE

- 
- In duplicated mode, a 4K resolution monitor supports up to 30 fps. In extended mode, the resolution of a primary monitor supports up to 1080p.
 - If the total power of the port or the maximum power per port is exceeded, all ports will be powered off one by one. For PoE power consumption of each product, see below.
 - BRB-X3210S1E : Total 53Vdc Max 3.77A, Max Power 53Vdc Max 0.57A per port
 - BRB-X1610SE : Total 52Vdc Max 1.92A, Max Power 52Vdc Max 0.58A per port

CONTENTS

OVERVIEW

3

3

Important Safety Instructions

4

Before Start

5

Contents

6

Features

6

Package Contents

7

Part Names and Functions (Front)

8

Part Names and Functions (Rear)

INSTALLATION

9

9

Checking the Installation Environment

9

Installing the Rack

9

Installing the HDD

CONNECTING TO OTHER DEVICES

13

13

Connecting to an External Device

13

Connecting the USB

14

Connecting the Network

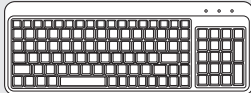
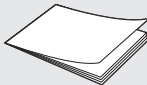
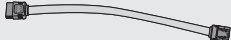
overview

PACKAGE CONTENTS

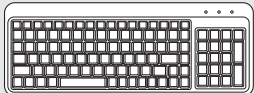
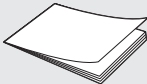
Please unwrap the product, and place the product on a flat place or in the place to be installed.
Please check the following contents are included in addition to the main unit.

- 
- 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. The numbers of HDD fixing screws and SATA cables vary depending on the fixed number of HDDs.

BRB-X3210S1E/BRB-X32101E

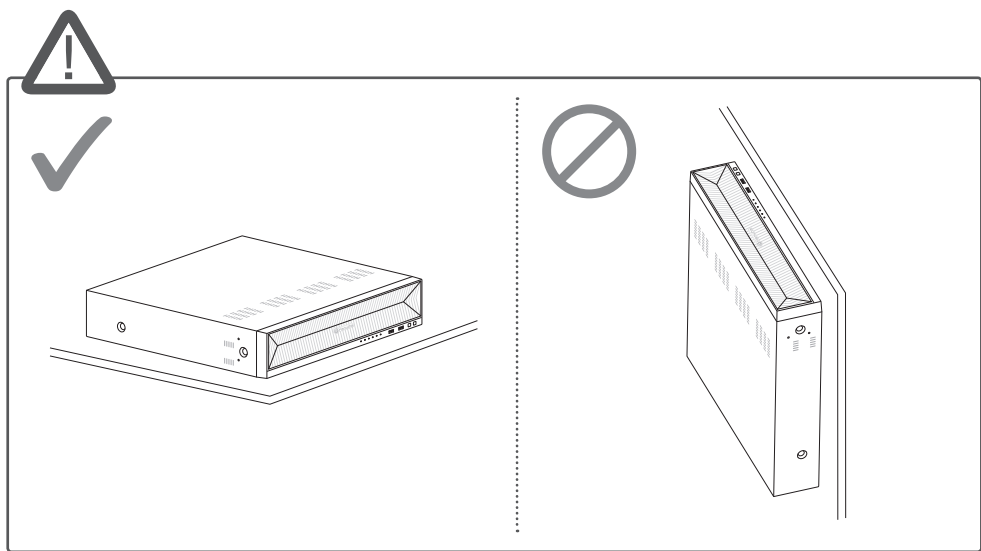
		
VMS Appliance	Mouse	Keyboard
		
Quick Guide	Power Cable	Bracket Rack (2 ea)
		
SATA Power Cable	SATA Data Cable (4 ea)	HDD Fixing Screw (16 ea)
		
Bracket Fixing Screw (4 ea)		

BRB-X1610SE/BRB-X1610E

		
VMS Appliance	Mouse	Keyboard
		
Quick Guide	Power Cable	Bracket Rack (2 ea)
		
SATA Power Cable	SATA Data Cable (2 ea)	HDD Fixing Screw (8 ea)
		
Bracket Fixing Screw (4 ea)		

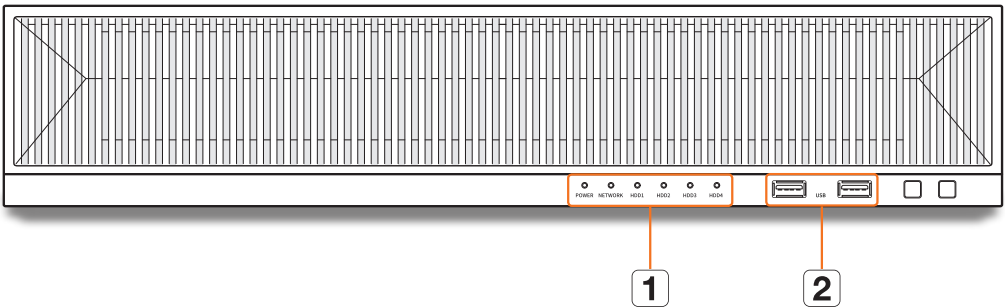
overview

 ■ Use the product in a flat, horizontal position as illustrated.

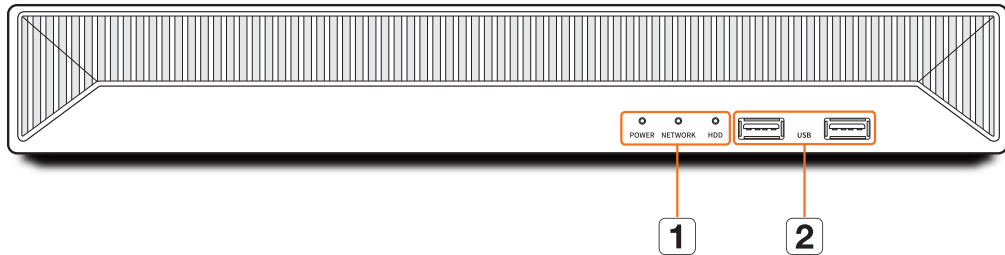


PART NAMES AND FUNCTIONS (FRONT)

BRB-X3210S1E/BRB-X32101E



BRB-X1610SE/BRB-X1610E

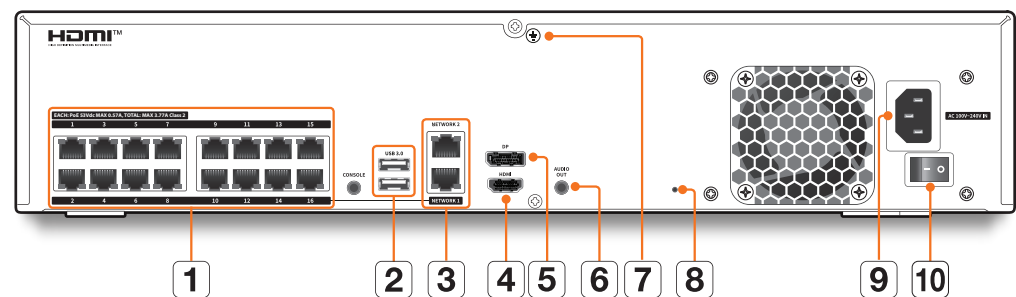


Name		Functions
1	LED Indicator	POWER : Shows the power ON/OFF status.
		NETWORK : Displays the status of the NETWORK2 port connection and data transmission.
		HDD : Displays the operation status of the HDD. The LED blinks when the HDD is active.
2	USB	Connects the USB devices. (USB 2.0 supported)

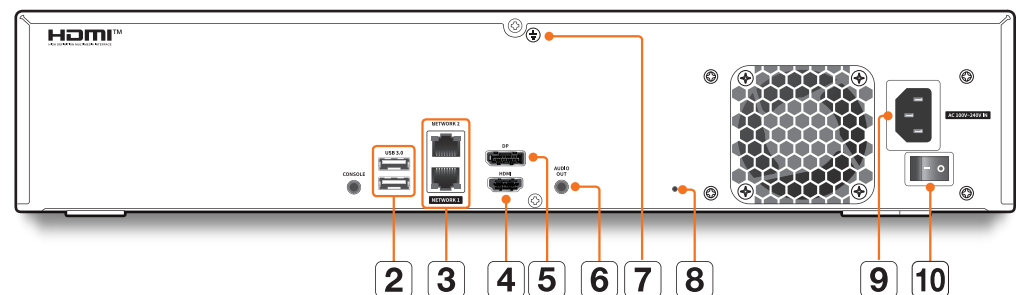
overview

PART NAMES AND FUNCTIONS (REAR)

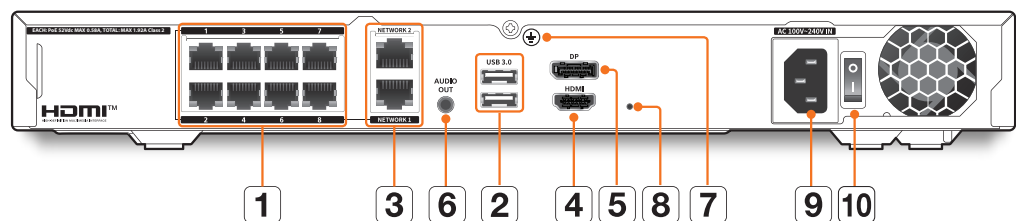
BRB-X3210S1E



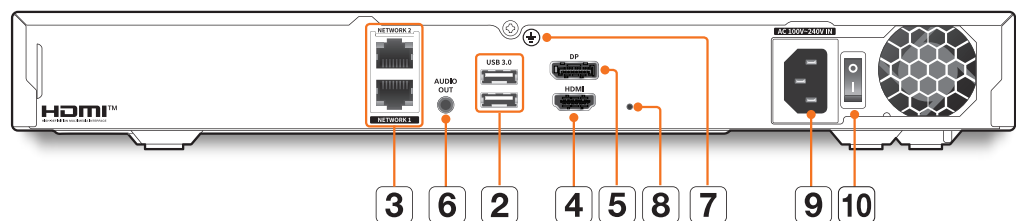
BRB-X32101E



BRB-X1610SE



BRB-X1610E



Name		Functions
1	PoE	Supply power to the camera.
2	USB 3.0	Terminal that connects a USB type device.
3	NETWORK 1	Terminal used to connect a camera and receive video signals from the camera.
	NETWORK 2	Terminal that is recommended for network connection and access to the Web Viewer.
4	HDMI	HDMI video output port.
5	DP	DP video output port.
6	AUDIO OUT	Audio output port.
7	Ground Connection	Port for connecting a separate ground cable. For safe handling of the device, please add a ground wire.
8	Factory default	You can reset all settings of the product to factory defaults.  Performing a factory reset will erase all recorded data on the HDD.
9	Power	Terminal to connect power to.
10	Power Switch	Power on/off switch.



- When connecting the AC power cord or turning on the power switch, there may be a luminous (light) phenomenon inside the SMPS. This phenomenon is the normal operation of the SMPS protection element.
- **CONSOLE** is designed for the service repair purpose only.

installation

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.

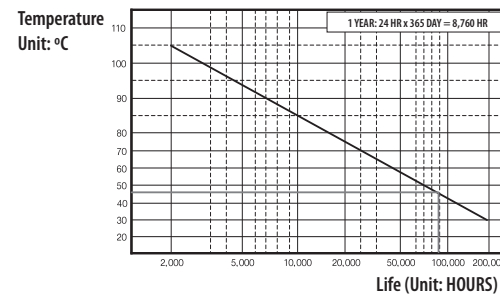


■ Depending on the HDD configuration and the surrounding temperature, there may be some noise from the product.

CHECKING THE INSTALLATION ENVIRONMENT

This product is an advanced security device with a high-capacity HDD and critical internal circuitry.

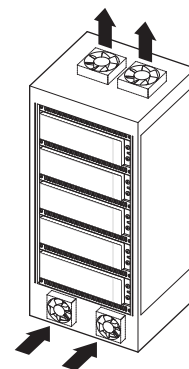
Note that an excessive internal temperature of the product may cause a system failure or a shortened product life (see the right figure). Keep in mind the following instructions before installing the product.



[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 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. It is recommended to keep the temperature inside the rack or around the product at 25°C.

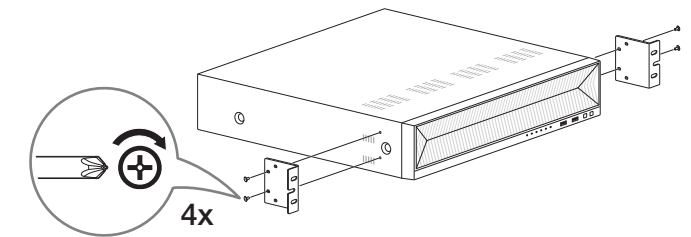


[Figure 2]

INSTALLING THE RACK

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

- Fix the screws not to be loosened by vibrations.



Example) BRB-X3210S1E

INSTALLING THE HDD

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
 - BRB-X3210S1E/BRB-X3210T1E : Max. 4 EA
 - BRB-X1610SE/BRB-X1610E : Max. 2 EA
- 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 HDD may be damaged.

A sudden power failure or turning off the product while in HDD operation may damage the HDD.

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.
4. If you wish to replace or add an HDD, contact your dealer or our customer service first.

Installing the HDD

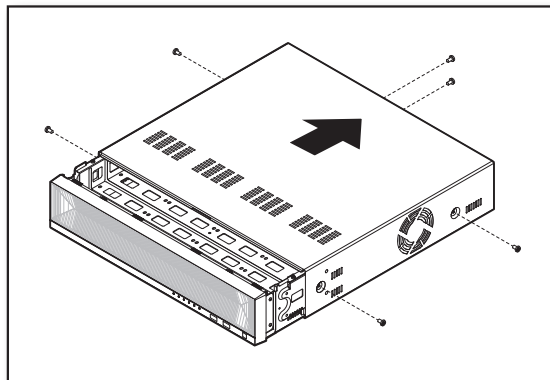


- If you are adding a new or previously used HDD to this product in addition to the HDD(s) originally installed, format the new HDD manually in the set before use.
- For replacement or installation of an additional HDD you must contact your dealer or our customer center.

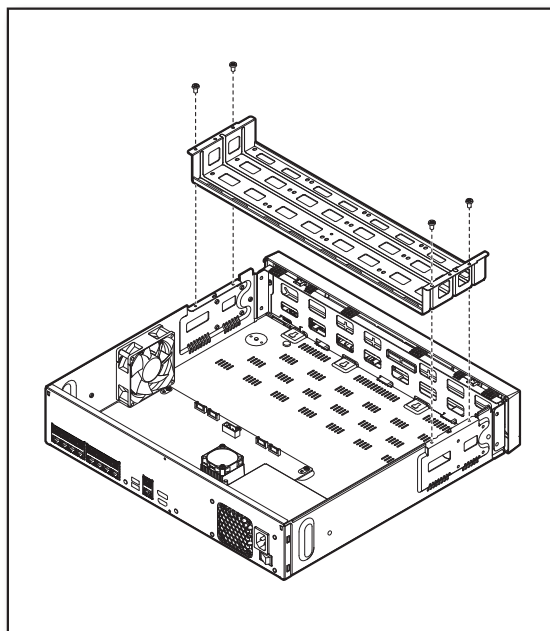
BRB-X3210S1E/BRB-X32101E

- The following figures are based on Model BRB-X3210S1E.

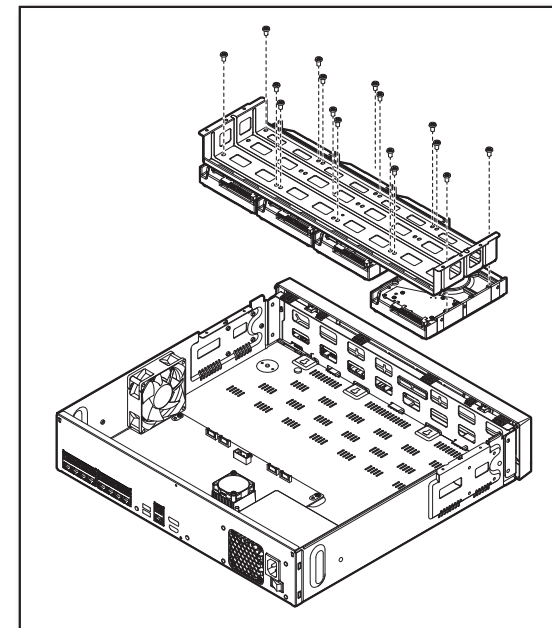
1. Remove the screws from the left/right sides and back side, and push the cover back to release it.



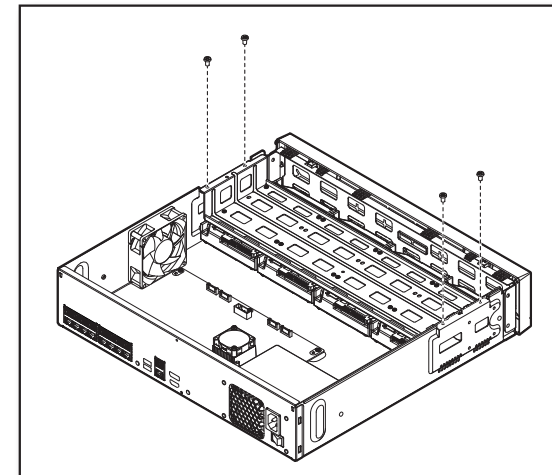
2. Remove the screws from the left/right sides and release the bracket.



3. Mount an HDD into the bracket, and fix it using screws.



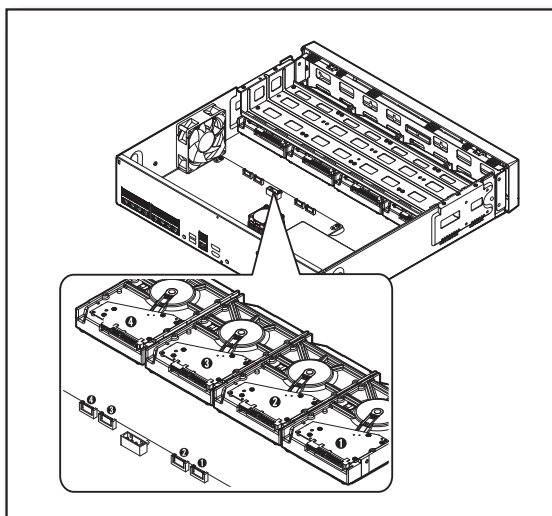
4. Fix the HDD-mounted bracket to the product using screws.



installation

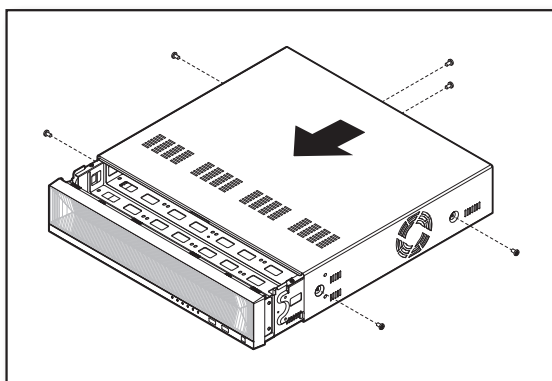
5. Connect the SATA/power cable of the HDD to the connector of the main board.

- Refer to the figure below for the HDD location number and connector number.



6. Make sure that there is no problem in the connection port and routing inside the product, and then fix it using screws after closing the cover.

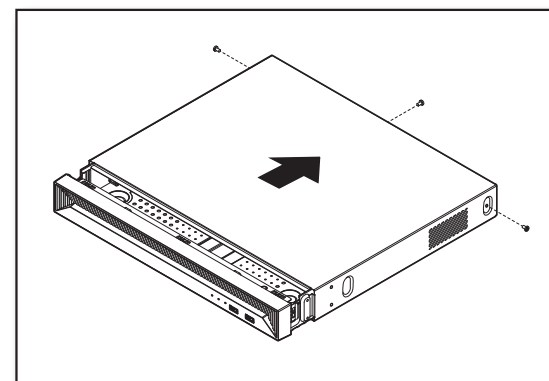
- When closing the cover, be careful not to damage the cable.



BRB-X1610SE/BRB-X1610E

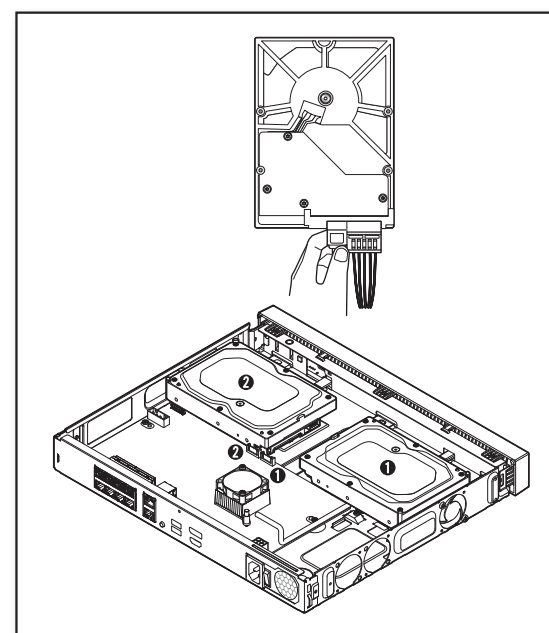
- The following figures are based on Model BRB-X1610SE.

1. Remove the screws from the left/right sides and back side, and push the cover back to release it.



2. Connect the SATA/power cable of the HDD to the connector of the main board.

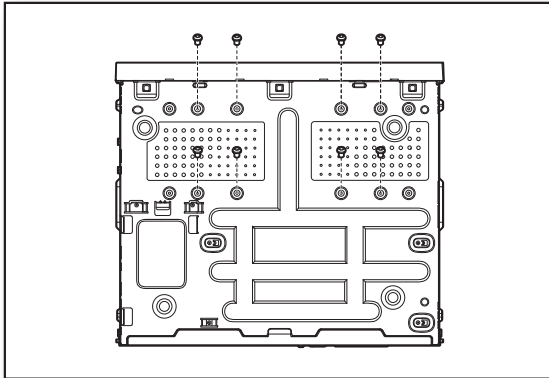
- Refer to the figure below for the HDD location number and connector number.



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

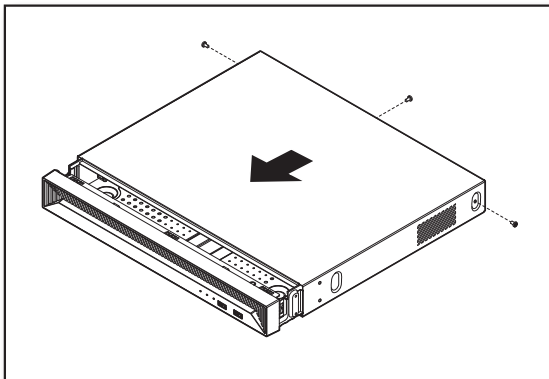
installation

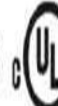
3. Use the screws to fix the HDD to the bottom of the product.



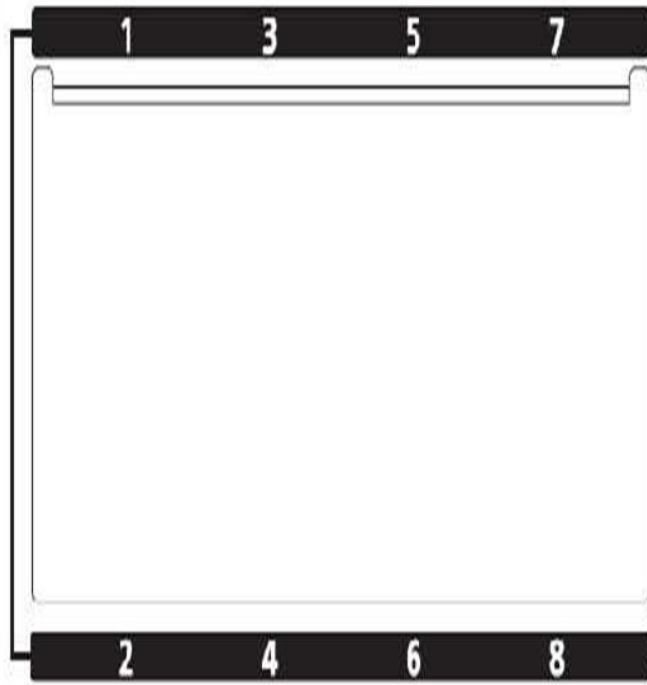
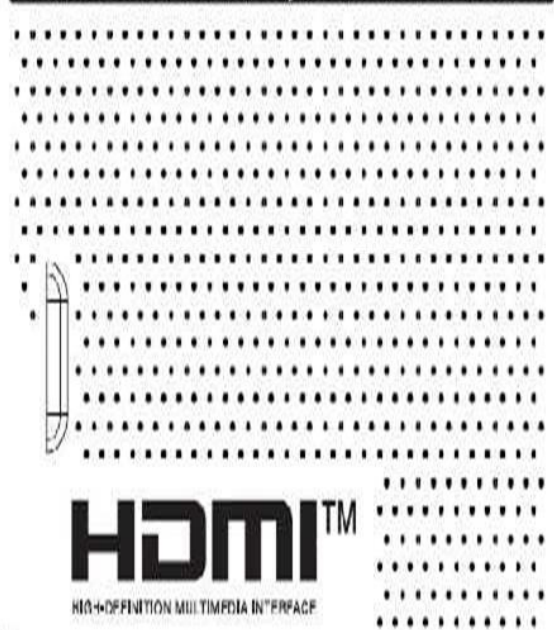
4. Make sure that there is no problem in the connection port and routing inside the product, and then fix it using screws after closing the cover.

- When closing the cover, be careful not to damage the cable.



VMS(Video Management Software) Appliance MODEL: BRB-X1610SE AC 100-240V~ 50/60Hz 1.8A M/C: BRB-X1610SE/KAP Fac. ID: D DATE S/N: Serial No. MAC ADDRESS 1: XX-XX-XX-XX-XX-01 MAC ADDRESS 2: XX-XX-XX-XX-XX-02 MAC ADDRESS 3: XX-XX-XX-XX-XX-03 CAN ICES-3(A)/NMB-3(A) MADE IN KOREA Hanwha Vision Co., Ltd.	     I.T.E. US LISTED 9T06 E168873     PT03-002663T	VMS(Video Management Software) Appliance MODEL: BRB-X1610E AC 100-240V~ 50/60Hz 0.72A M/C: BRB-X1610E/KAP Fac. ID: D DATE S/N: Serial No. MAC ADDRESS 1: XX-XX-XX-XX-XX-01 MAC ADDRESS 2: XX-XX-XX-XX-XX-02 MAC ADDRESS 3: XX-XX-XX-XX-XX-03 CAN ICES-3(A)/NMB-3(A) MADE IN KOREA Hanwha Vision Co., Ltd.	     I.T.E. US LISTED 9T06 E168873     PT03-002663T
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EACH: PoE 52Vdc MAX 0.58A, TOTAL: MAX 1.92A Class 2



The following Page(s) are related to Miscellaneous-03. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

SPECIFICATIONS

TO MESSRS : 한화테크윈

CUSTOMER'S MODEL :

CUSTOMER'S PART NO :

ITEM : LINE FILTER

TNC SPEC NO. : CV650050SKA

APPROVED	REFERENCE

DATE : 2020. 05. 29

TNC (株)TNC

#304-29 Asan Valley, DunPo-Myeon, Asan-Si, Chung Cheong
Nam-Do, KOREA 336-871
TEL : 82-41-530-9600
FAX : 82-41-530-9697

NOTICE : After received this approval sheet and finished it's approval, please return back one copy. In case of you don't any reply until initial order date, this approval sheet is to be standard approval and initial order date is to be approved date for concerning item.

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV650050SKA	0

2. ELECTRICAL CHARACTERISTIC

NO	ITEM	TERMINAL	SPECIFICATION			REMARKS
1	RATED VOLTAGE	LINE TO LINE	AC 300V			
2	RATED CURRENT	START-FINISH	5.0A			
3	INDUCTANCE	START-FINISH	16KHz	5.0mH	+ 50%, -30%	HP-4194A 1V (25℃±2℃)
4	TEMPERATURE RISE	AT RATED CURRENT	55℃ MAX			
5	DC RESISTANCE	START-FINISH	48.0 mΩ MAX			HIOKI 3540 (25℃±2℃)
6	WITHSTANDING VOLTAGE	LINE TO LINE	AC 1,500V 1 MINUTE.			TOS-5101 CUT OFF CURRENT (5mA)
7	INSULATION RESISTANCE	LINE TO COVER	DC 500V, 300MΩ MIN.			TOS-8850

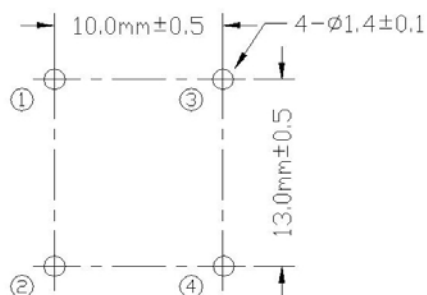
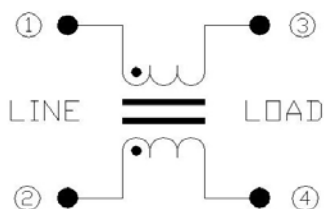
3. OPERATING TEMPERATURE RANGE

-40℃ TO +120℃ INCLUDING TEMPERATURE RISE.

4. KEEP TEMPERATURE RANGE

-40℃ ~ +120℃.

5. CIRCUIT DIAGRAM



PCB layout requirements

※PCB LAYOUT is strictly required..

TNC TNC CO.,LTD

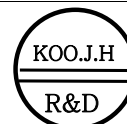
DESIGN



CHECK



APPROVAL



PAGE

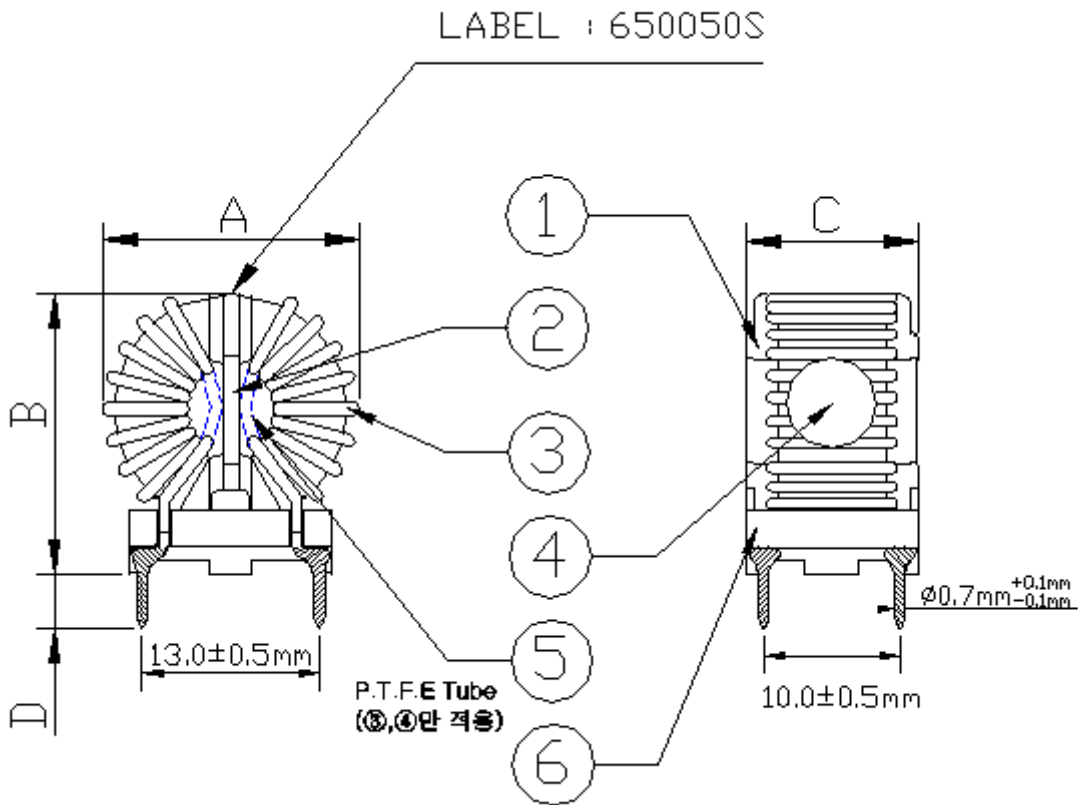
3/16

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV650050SKA	0

6. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS	WINDING METHOD	UNBALANCE SPECIFICATION
	START	FINISH				
L1	1	3	UEW 0.7Φ	27 ±2Ts	HANDMADE	BETWEEN L1 AND L2 (0.2mH MAX)
L2	2	4				

7. SHAPE AND DIMENSION



DIMENSION	A	B	C	D
	21.0mm MAX	23.0mm MAX	15.0mm MAX	Not include solder fillet 4.0±1.0mm

TNC TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	CHOI.J.K R&D	KANG.S.W R&D	KOO.J.H R&D	4/16

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV650050SKA	0

8. MATERIAL LIST

No.	NAME	SPECIFICATION		MANUFACTURER	UL No.
1 / 2	Core Cover Coil Separator	PBT LUPOX GP-2156F(#)		LG CHEM LTD	E67171
	PBT 4130		CHANG CHUN PLASTICS CO LTD	E59481	
3	Enamel Wire	UEW 0.7Φ / 27±2Ts	UEW	Hwa Il Electronics Co.,Ltd	E140246
			UEW	YANTAI ROME ELECTRONIC CO LTD	E166187
			UEW	SIAM PACIFIC ELECTRIC WIRE & CABLE CO.,LTD	E142108
			UEW	LIAONING DONGGANG MAGNET WIRE CO LTD	E229247
4	Ferrite Core	MA100 R-16-10-7 A10 T16X10X7 M10K T16X10X7		JFE Ferrite Corp ACME Electronics Corporation SUZHOU TIANMING MAGNETIC INDUSTRY CO.,LTD	
5	Insulation tube	P.T.F.E Tube (Teflon Tube) NOT HEAT-SHRINKABLE PTFE TUBING		SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD	E203950
6	Coil Base	Phenolic (PF 2736(a)(b)) UL 94 V-0 Class		Hexion GmbH	E61040
		Phenolic (T375HF) UL 94 V-0 Class		CHANG CHUN PLASTICS CO LTD	E59481

9. MARKING

MODEL	LABEL	COLOR
CV650050SKA	650050S	black letters on Transparent

 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
				5/16

