



The table below describes the files that were selected to be included as part of this package.

Supplements, such as Figures and Illustrations, will appear as X number of Figures, X number of Illustrations, etc., rather than naming each one.

E158873-A6205-DescriptionUL
Figure-11-Total

This material is provided on behalf of UL LLC (UL Solutions) or any authorized licensee of UL Solutions.

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:	IP AUDIO BRIDGE
Model:	SPA-B1000
Rating:	24 Vdc, 0.11 A or PoE (44-57 Vdc), 0.09 A
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.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Lawrence Lee / Project Handler Reviewed By: SeulKi Park / 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

IP AUDIO BRIDGE is supplied by DC or PoE which comply with ES1 and PS2. The product is enclosed by metal enclosure, and numerous components are mounted on PWB. The product can be connected to network device. The product also has alarm port and SD memory port.

Model Differences

N/A

Test Item Particulars

Product group	end product
Classification of use by	Instructed person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	mating connector
Considered current rating of protective device	N/A
Equipment mobility	wall/ceiling-mounted
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	50
IP protection class	IPX0
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.24

Technical Considerations

- ☐ The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 50 °C
- ☐ The product is intended for use on the following power systems : No direct connection
- ☐ Considered current rating of protective device as part of the building installation (A) : N/A

- ☐ Mains supply tolerance (%) or absolute mains supply : No direct connection
- ☐ The equipment disconnect device is considered to be : N/A
- ☐ The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : All accessible connector
- ☐ The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

4791184712

- Maximum Normal Load: Continuous operation with followings.

- 1) SD Card inserted
- 2) Line port connected to the network device.
- 3) LED load is connected to the alarm port.

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 or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)
Hard Copy	A. IMPORTANT or ATTENTION or similar wording B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL (https://www.~~) or QR code.
(Website) Manual - 1	This product is intended to be supplied by a UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from 24 Vdc, 0.11 A or PoE (44-57 Vdc), 0.09 A.
(Website) Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.af or IEEE 802.3.at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL 60950-1 or PS2 as defined in UL 62368-1.

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
-	-	-	-	-	-	-
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All model					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	All model					
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.					
	All model					

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

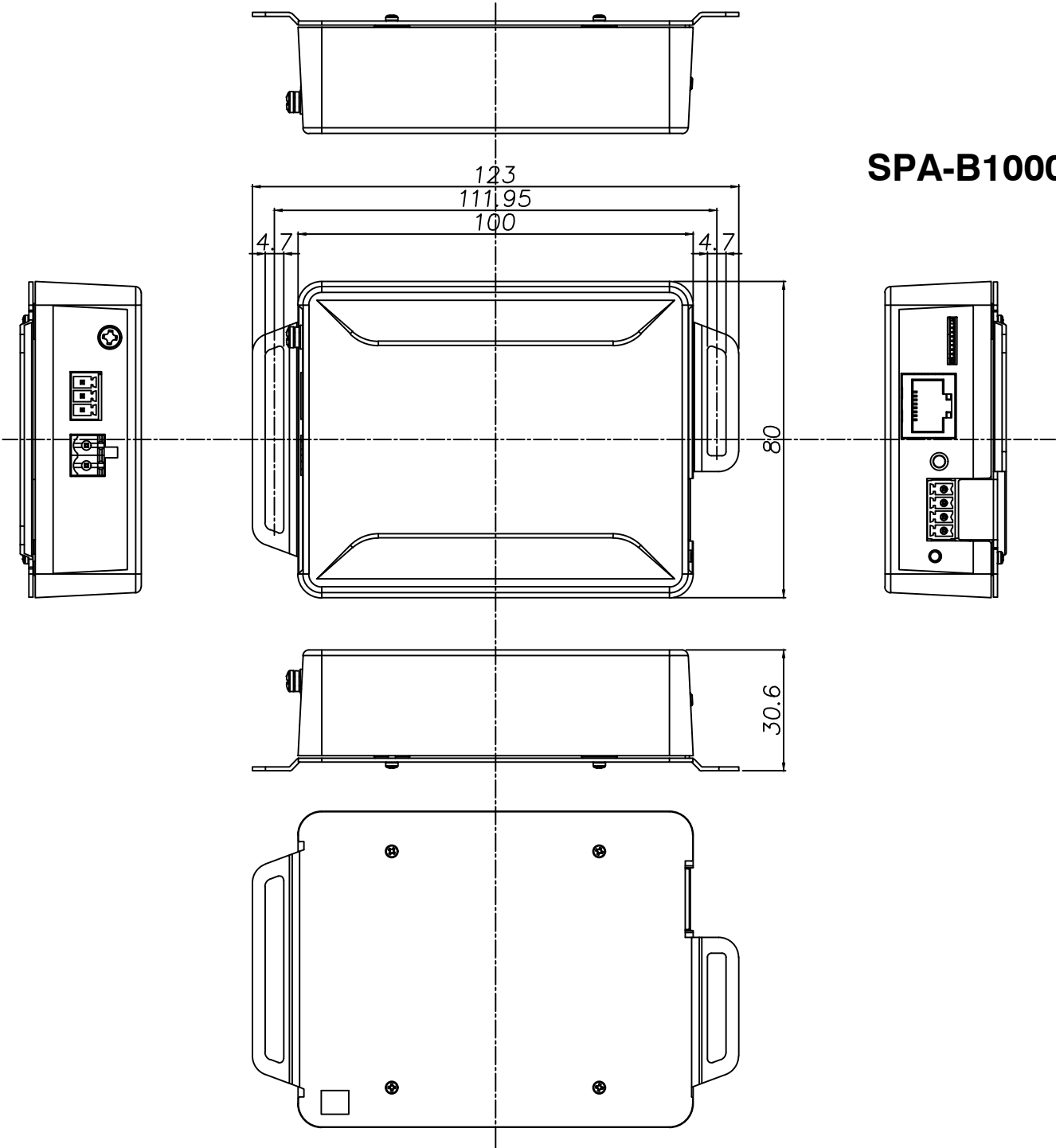
4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Enclosure Top (Metal)	Interchangeable	Interchangeable	Steel, Min. 2.0 mm thickness.	-	-	
Enclosure Bottom (Metal)	Interchangeable	Interchangeable	Steel, Min. 1.0 mm thickness.	-	-	
Opto-coupler (PC700)	LITE-ON Technology Corporation	LTV-356T	Isolation Voltage: 3750. Max. Operation Temperature:110 deg. C	FPQU2	UL (E113898)	
Opto-coupler (OPT1)	LITE-ON TECHNOLOGY CORP	LTV-217	Isolation Voltage: 3750. Max. Operation Temperature:110 deg. C	FPQU2	UL (E113898)	
Transformer(T1)	ATECH OEM INC	ATS-2018R	31 uH, 130 deg. C	-	-	
Rechargeable battery(BAT1)	SEIKO INSTRUMENTS INC MICRO- ENERGY DIV	MS920T	Lithium, Rechargeable, Max Charging Voltage, 3.3 V dc, Max Charging current: 200 mA	BBCV2	UL (MH15628)	
Lithium Battery Protection Circuit	Interchangeable	Interchangeable	Diode (D219, 80 V, 250 mA) and Resistor (R219, 1 Kohm) in series	-	-	
PWB	SEO KANG TECH CO., LTD.	SK	Min. V-0, 105 deg. C	ZPMV2	UL (E150774)	
PWB -Alternate	Interchangeable	Interchangeable	Min. V-0, 105 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. 50 deg. C if not specified.	PGDQ2 or PGJI2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	External - 1
Photographs	03-02	External - 2
Photographs	03-03	Connector Ports - 1
Photographs	03-04	Connector Ports - 2
Photographs	03-05	Internal
Photographs	03-06	Main board Top
Photographs	03-07	Main board Bottom
Diagrams	04-01	Mechanical drawing
Manuals	06-01	Manual
Miscellaneous	07-01	Transformer (T1) Specification
Miscellaneous	07-02	Label

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

SPA-B1000



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

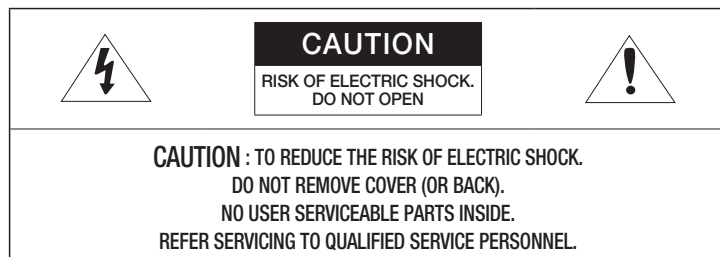
WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions.

CAUTION



EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

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.

These servicing instructions are for use by qualified service personnel only.



To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The ITE is to be connected only to (PoE/PoE+) networks without routing to the outside plant.

The wired LAN hub providing power over the Ethernet (PoE/PoE+) in accordance with IEEE 802.3af/at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.

Unit is intended for installation in a Network Environment 0 as defined in IEC TR 62102. As such, associated Ethernet wiring shall be limited to inside the building.

IMPORTANT SAFETY INSTRUCTIONS

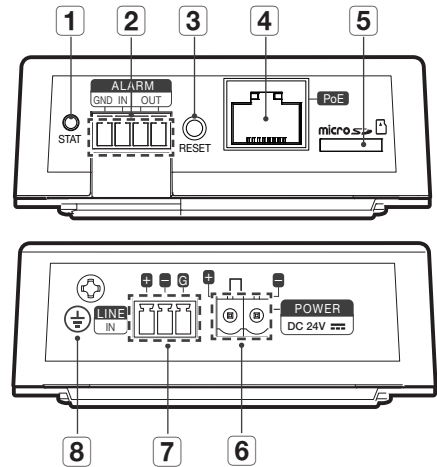
1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth.
(Do not use a detergent or cosmetic products that contain alcohol, 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. To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions.
14. Unplug this apparatus during lighting storms or when unused for long periods of time.
15. 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.
16. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from PoE(802.3af) : 44V-57V (), max 90mA / DC 24V (), max 110mA.
17. This product is intended to be supplied by isolation power.
18. If you use excessive force when installing the product, the product may be damaged and malfunction.
If you forcibly install the product using non-compliant tools, the product may be damaged.
19. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table.
This may cause damage to the product.
20. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance.
Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.
21. If you install/disassemble the product in a manner that has not been recommended, the production functions/ performance may not be guaranteed.



22. Do not install on a surface where it is exposed to direct sunlight, near heating equipment or heavy cold area.
23. Do not place this apparatus near conductive material.
24. Do not attempt to service this apparatus yourself.
25. Do not place a glass of water on the product.
26. Do not install near any magnetic sources.
27. Do not place heavy items on the product.
28. Please wear protective gloves when installing/removing the product.
The high temperature of the product surface may cause a burn.
29. This device has been verified using STP cable. The use of appropriate GND grounding and STP cable is recommended to effectively protect your product and property from transient voltage, thunderstroke, communication interruption.
30. In particular installation environments, there might be interference in radio communications.
When interference of electromagnetic waves occurs between the product and radio communication device, it is recommended to keep a certain distance between the two or change the direction of the receiving antenna.
31. An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
32. Batteries(battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like. The battery cannot be replaced.
33. Disconnect the main plug from the apparatus, if it's defected. And please call a repair man in your location.
34. Select an installation site that can hold at least 5 times the product's weight.
35. Stuck-in or peeled-off cables can cause damage to the product or a fire.
36. For safety purposes, keep anyone else away from the installation site.
And put aside personal belongings from the site, just in case.
37. We do not guarantee the quality of third-party products (e.g. accessories) that you separately purchase.
38. Prohibition of battery abuse
 - Do not install and use the wrong type of battery.
 - Do not leave the battery in a mechanically crush or cut it because it can explode.
 - Do not leave the battery in a high temperature environment.
 - Do not leave the battery in a low-pressure environment.

AT A GLANCE

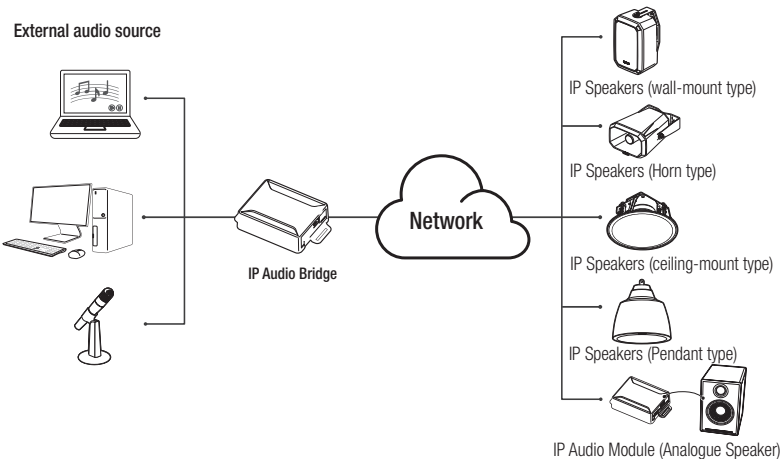
Side



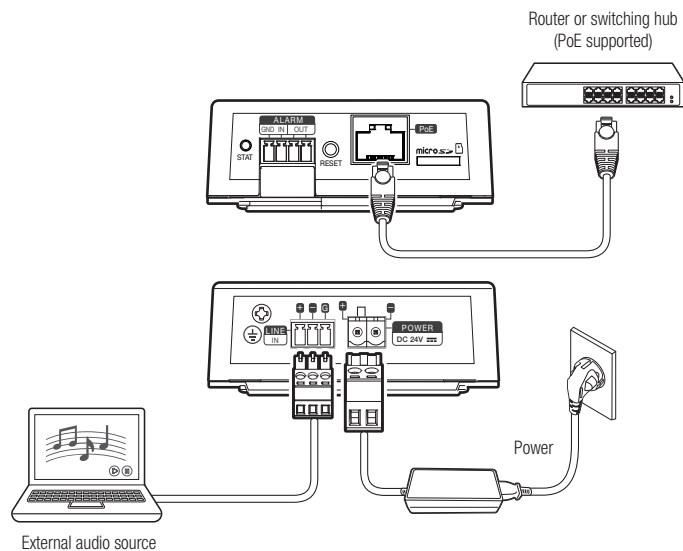
Name	Function Description
1 STATUS	When the initialization is in progress, the STATUS lamp blinks fast. When the initialization is completed, it blinks slowly in an interval of 1 second.
2 ALARM	ALARM IN: An alarm input terminal. ALARM OUT: An alarm output terminal. GND: It is a ground terminal.
3 RESET	A button that returns the product settings to the factory default values. Press the button for approximately 12 seconds, the STATUS lamp blinks at a fast speed, and when the reboot is completed after initialization, it blinks at a slow speed again. ⚠ Do not disconnect the power until product resetting is complete. Doing so may cause malfunctions. It will take up to 10 minutes to reboot the product after initializing it.
4 Network Terminal	A terminal that connects a switching hub supporting PoE and a network cable for power and network connection.
5 micro SD card slot	A slot for a micro SD card.
6 POWER	Power input terminal (DC 24 V) DC
7 LINE IN	An input terminal used to connect to an external device.
8 Grounding port	Used for earth-grounding. Grounding serves to protect the product from lightning strikes. Before connection, be sure to turn off the power of the device.

SYSTEM CONFIGURATION DIAGRAM

Analog audio signals from the connected external devices can be transmitted to any IP speaker.



Connecting to other devices



! ■ When connecting to each device, be sure to power off the connected device before connecting.

Connecting to a Network

Connect the router or switching hub to the **NETWORK** port of the product using a network cable.

Network Connection to Power

Connect the router or switching hub using a network cable that provide PoE to the **NETWORK** port of the product.

- ! ■ For PoE, use equipment that supports the IEEE802.3af standard.
- If you connect to a PoE-supported switching hub, you can use the product without connecting a separate power source.
 - To connect to the product's network, refer to "starting." (Page 8)

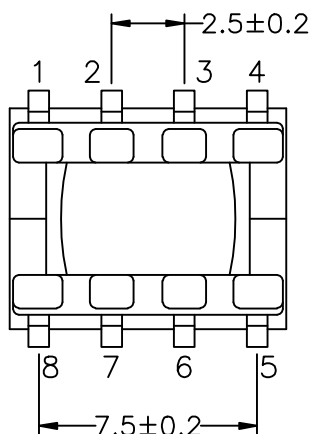
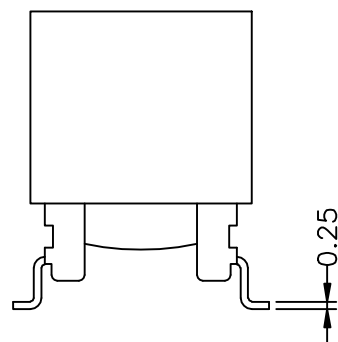
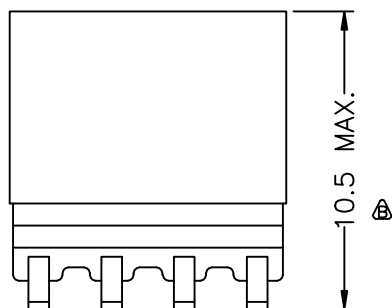
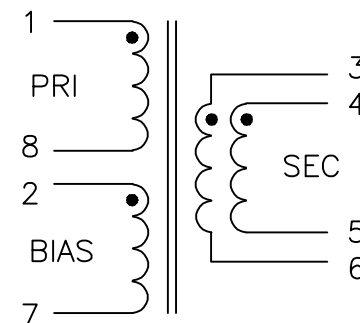
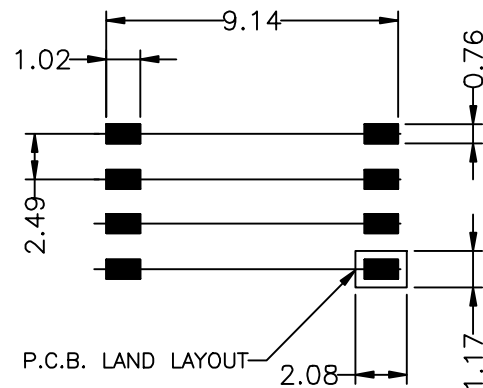
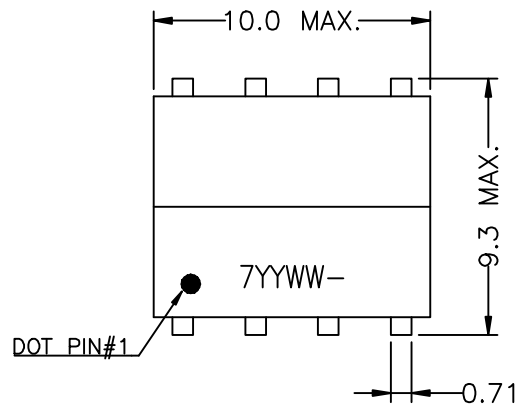
Connecting to Power

Connect the supplied power adapter's connector to the product's power input (DC 24V), and then connect the power cord to the power adapter.

Network Cable Specifications

Item	Specifications	Remark
Connector	RJ45 (10/100BASE-T)	
Ethernet	10/100Base-T	
Cable	Category 5e	
Max Distance	100 m	DC resistance ≤ 0.125 Ω/m
PoE Support	IEEE 802.3af	

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



* RoHS COMPLIANT


ELECTRICAL CHARACTERISTICS :

- DCR : PIN 1-8 = 0.2Ω MAX.
PIN 2-7 = 0.25Ω MAX.
PIN 3-6 = 0.25Ω MAX.
PIN 4-5 = 0.25Ω MAX.

- INDUCTANCE (@200kHz, 0.1Vrms) :
PIN 1-8 = 31uH ±10%

- TURN RATIO (@100kHz, 0.1Vrms) :
PIN 1-8 : 2-7 = 2.43 ±3%
PIN 1-8 : 3-6 = 1.31 ±3%
PIN 1-8 : 4-5 = 1.31 ±3%

- HI-POT (@1500VAC, 1mA, 1SEC) : PRI-SEC

						TITLE POWER TRANSFORMER		
B	CHANGE DIM.	02/01/2023	SHIRLEY	BETTY		BETTY	DWG. NO.	ATS-2018R
A	CHANGE INDUCTANCE	05/11/2020	SHIRLEY	BETTY		BETTY		
	RELEASE	11/28/2019	SHIRLEY	BETTY		BETTY		
NO:	DESCRIPTION	DATE	BY	CHK		APPD		
REVISIONS						UNITS: M/M	SAFETY	SHEET 1 OF 1
						DATE 11/28/19	P/N:	DRAW Shirley

IP AUDIO BRIDGE

MODEL : SPA-B1000

PoE(802.3af) : 44V-57V $\overline{=}$, max 90mA

DC 24V $\overline{=}$, max 110mA

M/C : SPA-B1000/KEX Fac.ID : I

Hanwha Vision Co., Ltd.

MADE IN KOREA

CAN ICES-3(A)/NMB-3(A)











