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Please find attached the related material on Project

For your convenience, the below describes the related updates:

E158873-A6199-DescriptionUL
Figure-15-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:	NETWORK THERMAL CAMERA
Model:	TNO-C3032TRA, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA, TNO-C3012TRA, TNO-C3022TRA, TNO-C3050T, TNO-C3052T, TNO-C3040T, TNO-C3042T
Rating:	12 Vdc, 0.78 A or PoE (48 Vdc), 0.23 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.

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Prepared By: Lawrence 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

NETWORK THERMAL CAMERA has been designed for outdoor or indoor use and integrated a hole for mount. It is a commercial equipment supplied from 12 Vdc or PoE (Power over Ethernet) and installed by service personnel.

Model Differences

TNO-C3032TRA is basic model.

TNO-C3032TRA, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA, TNO-C3012TRA, TNO-C3022TRA are identical to basic model except model designation, lens, SW and Lens Gasket (Type, O-VMQ-50-GR).

TNO-C3040T, TNO-C3050T, TNO-C3042T, TNO-C3052T are identical to basic model except model designation, lens and SW and Lens Gasket (Type, O-VMQ-50- BL).

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	12 Vdc or PoE (Power over Ethernet)
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)	60 Outdoor: minimum -40
IP protection class	IP 66, 67
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)	1.7
Technical Considerations - The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60 °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 following are available from the Applicant upon request : Installation (Safety) Instructions / Manual - The outdoor equipment/enclosure was evaluated for use in an ambient range of : -40 °C to 60 °C	
Additional Information 4791049225 - Maximum Normal Load: Continuous operation. (Operate the camera through networked equipment) 4791722743 - Maximum Normal Load: Continuous operation. (Operate the camera through networked equipment). - Add IP 67 Report. - Add Gasket – Lens; type, O-VMQ-50-GR and O-VMQ-50-BL made by NAMYANG VINA for model TNO-C3032TRA, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA, TNO-C3012TRA, TNO-C3022TRA. 4791690478 - [CCL] Delete cable.	
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, File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, current)
Outdoor enclosure type	"Rainproof", IP66
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 12 Vdc, 0.78 A or PoE (48 Vdc), 0.23 A.
(Website) Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.af 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.
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:					
	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
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
Enclosure (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness. see enclosure for dimension.	-	Tested in equipment	
Deco Part SHIELD-SUN (Plastic)	LOTTE ADVANCED MATERIALS CO LTD	HN-1068(+)(f1)	Min. 2.0 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Internal part (Plastic)	LOTTE ADVANCED MATERIALS CO LTD	HN-1068(+)(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Internal part (Plastic) - Alternate	Interchangeable	Interchangeable	Min. 1.5 mm thickness, rated Min. HB	QMFZ2	UL	
Opto-coupler (LS1)	LITE-ON TECHNOLOGY CORP	LTV-816S-G	Isolation Voltage: 5300. Max. Operation Temperature: 110 deg. C	FPQU2	UL (E113898)	
Opto-coupler (LS1) - Alternate	COSMO ELECTRONICS CORP	K1010X*	Isolation Voltage: 5000. Max. Operation Temperature: 115 deg. C	FPQU2	UL (E169586)	
Fuse (F1)	LITTELFUSE INC	449*	125 Vac, 1.5 A	JDYX2	UL (E10480)	
Fuse (F1) – Alternate	Semitel Electronics Co.,Ltd	S6125S	125 Vac, 1.5 A	JDYX2	UL (E335954)	
Fuse (F1) - Alternate	LITTELFUSE INC	454*	125 Vac, 1.5 A	JDYX2	UL (E10480)	
Choke Coil (T7)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO LTD	PCM10021R	18 mH, 125 deg. C, See enclosure for more detail.	-	Tested in equipment	

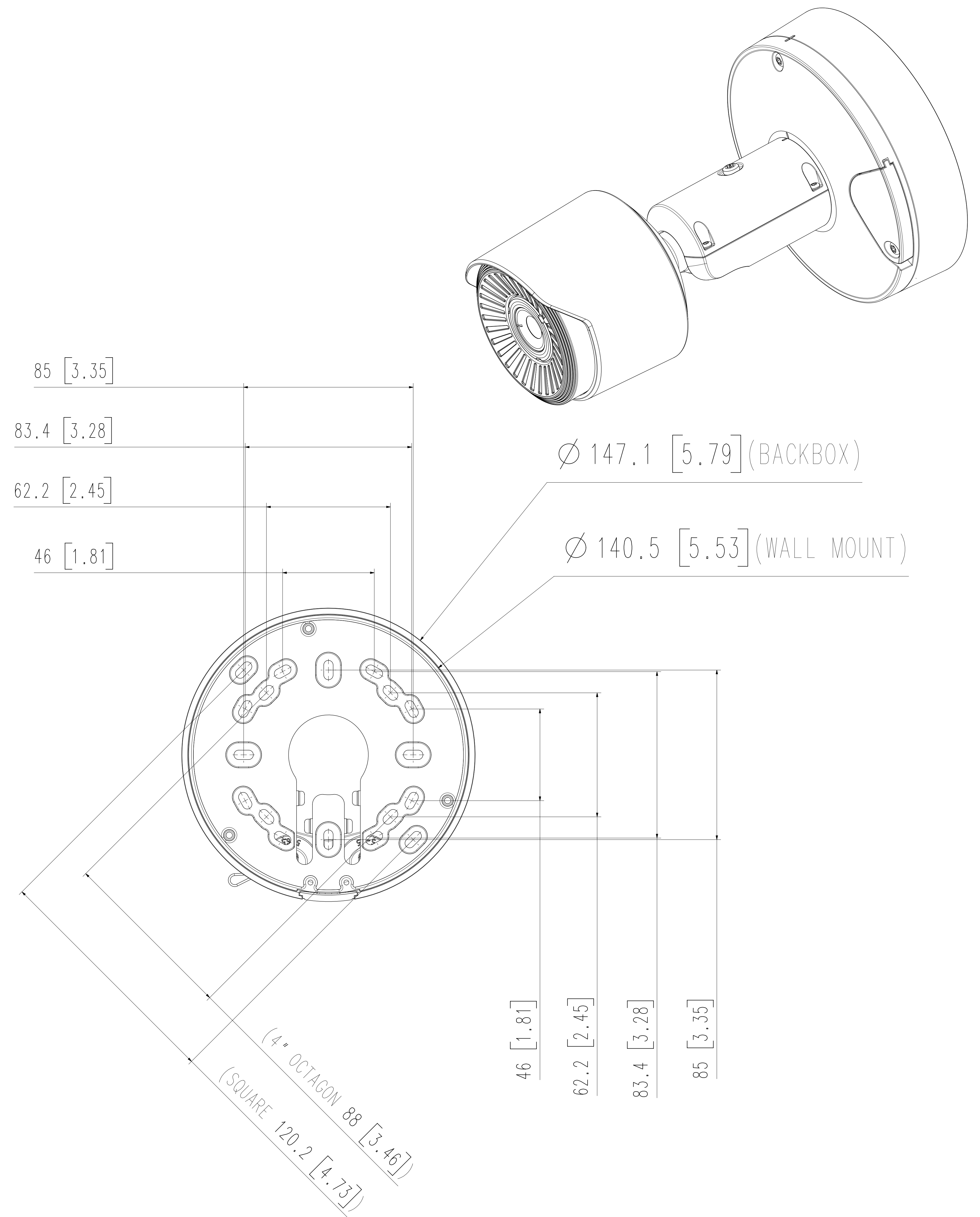
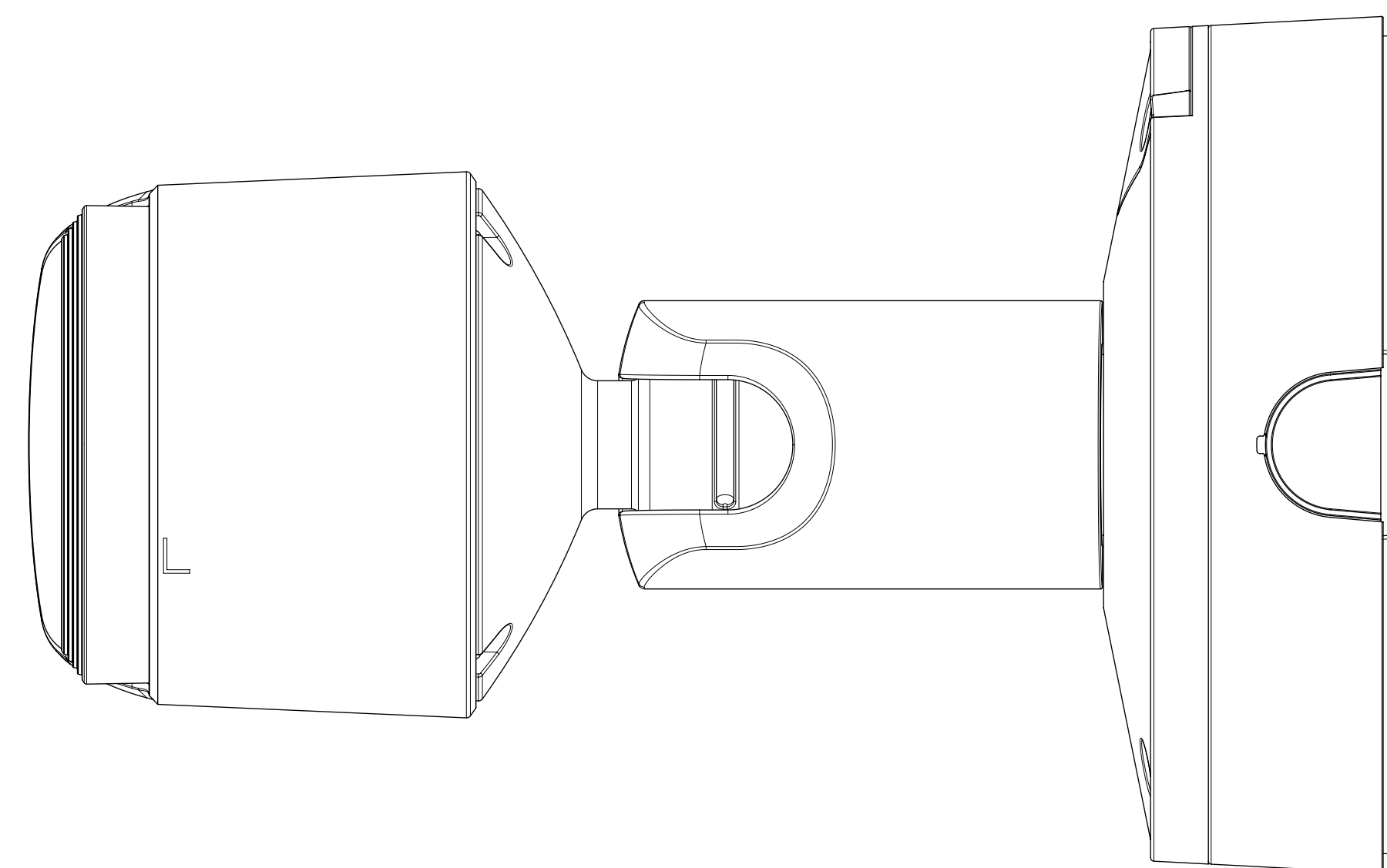
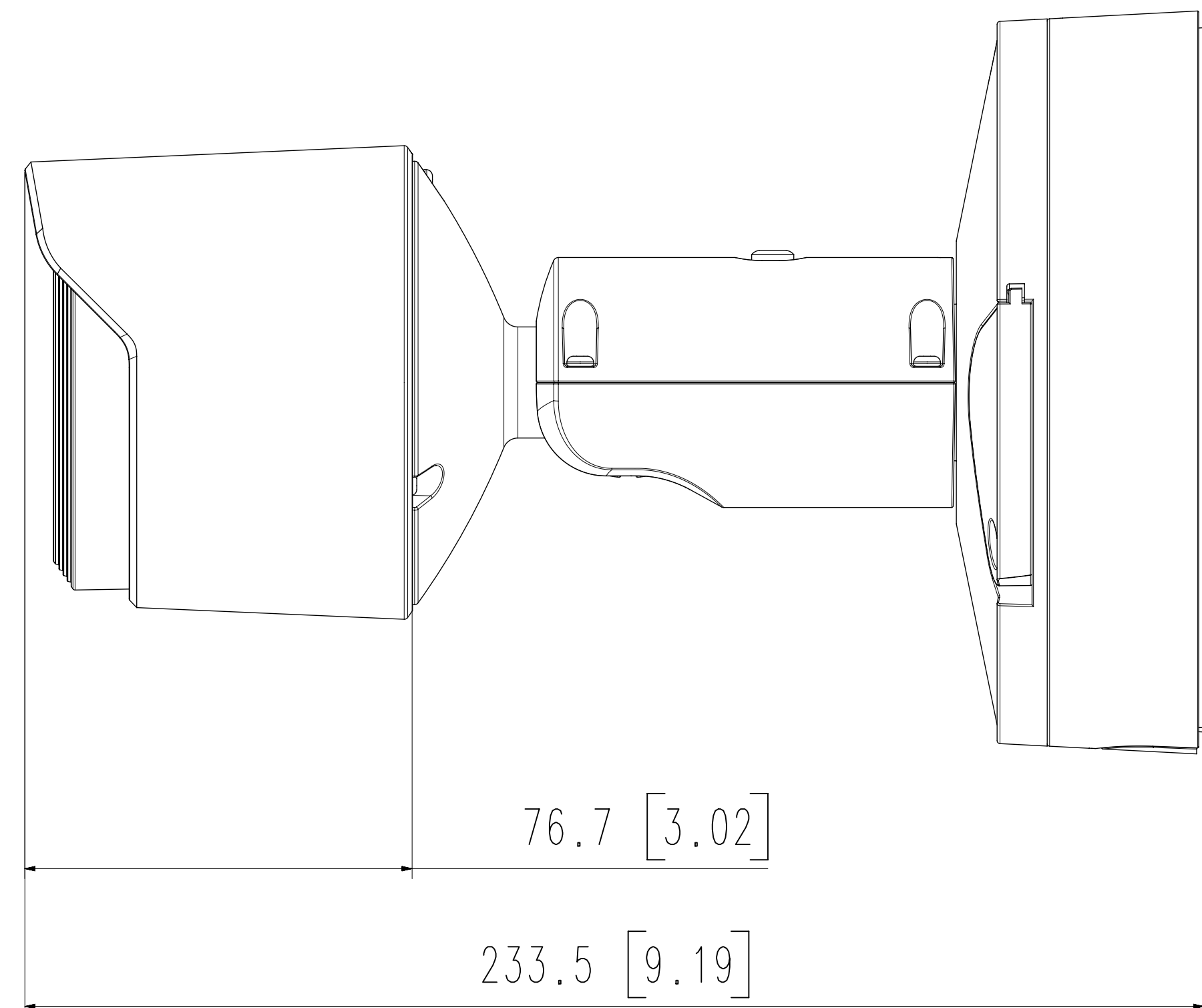
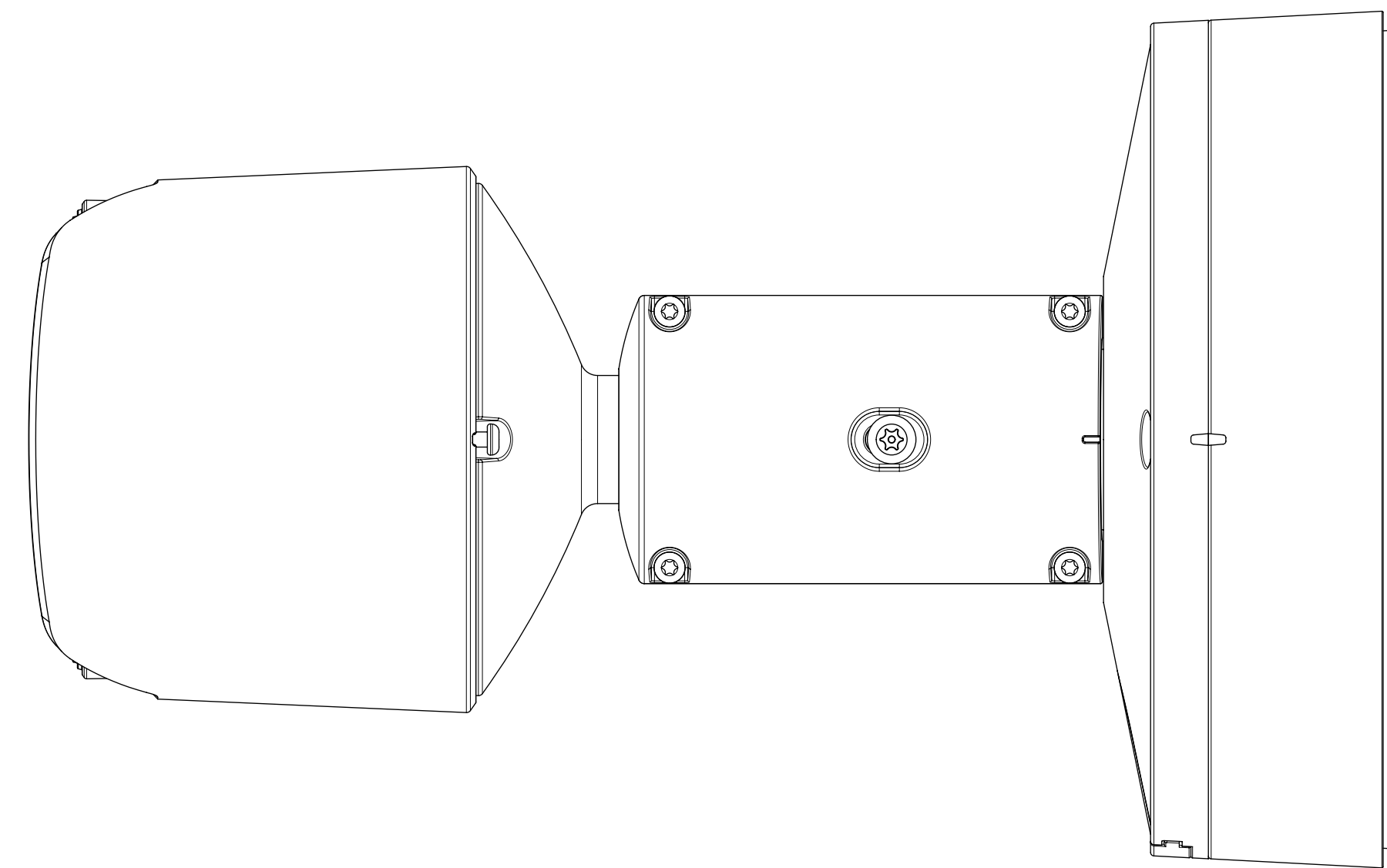
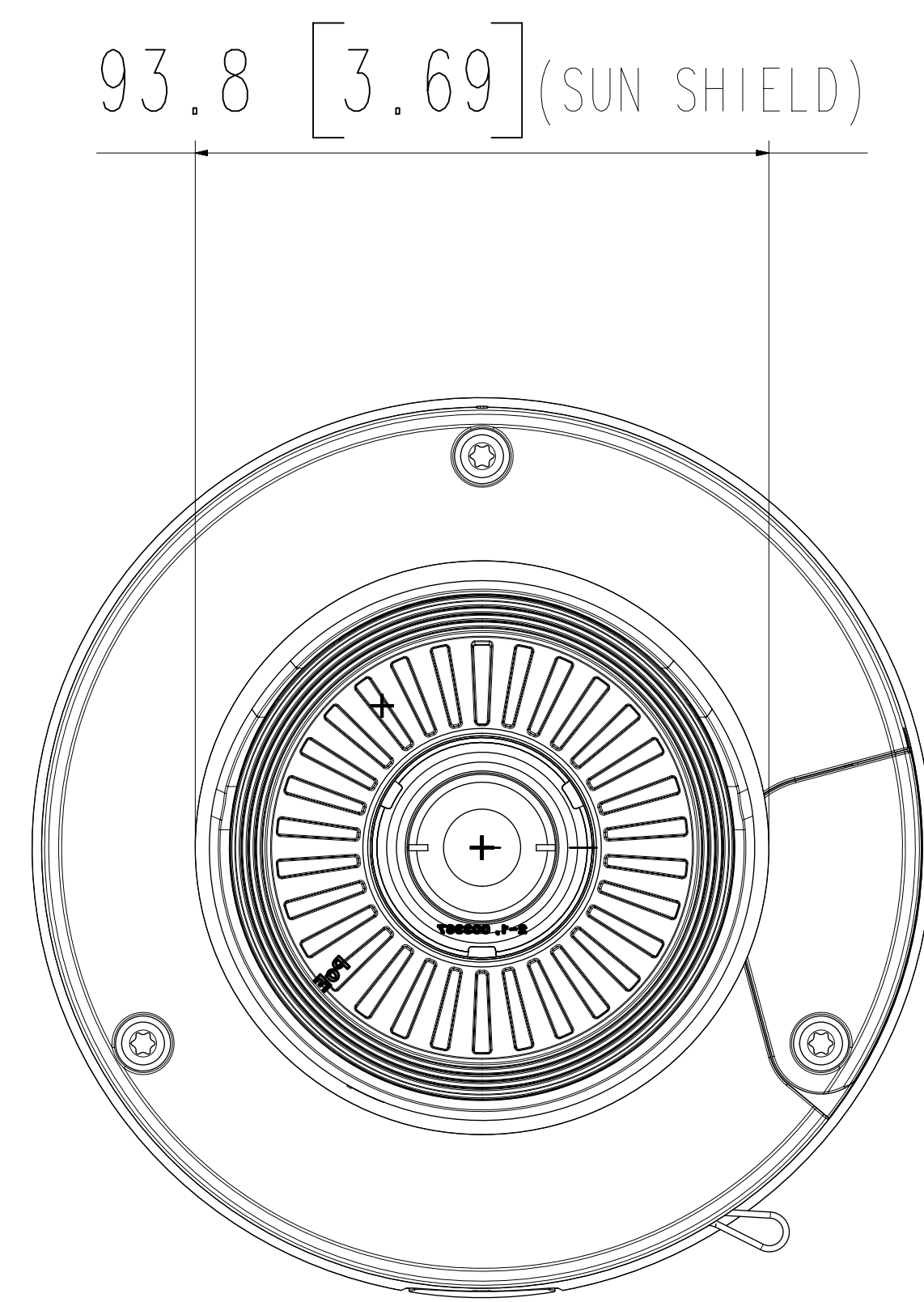
Transformer (T1)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO LTD	PDT25165SR	21.0 uH, 125 deg. C, See enclosure for more detail.	-	Tested in equipment	
Rechargeable battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Lithium, Rechargeable, Max Charging Voltage, 3.4 V dc, Max Charging current: 300 mA	BBCV2	UL (MH15628)	
Lithium Battery Protection Circuit	Interchangeable	Interchangeable	Diode (D4, 80 V, 300 mA) and Resistor (R143, 3.3 Kohm) in series	-	-	
USB protect IC (U14)	TEXAS INSTRUMENTS INCORPORATED	TPD3S014	Rated 4.5-5.5 Vdc, 0.5 A, Current limit: 1.05 A	QVGS2	UL (E169910)	
Gasket – Lens (TNO-C3032TRA, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA, TNO-C3012TRA, TNO-C3022TRA)	NAMYANG VINA	O-VMQ-50-GR	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Gasket – Lens (TNO-C3040T, TNO-C3050T, TNO-C3042T, TNO-C3052T)	NAMYANG VINA	O-VMQ-50-BL	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Gasket – Front	Y&K	O-VMQ-30-GR	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Gasket – Main	Y&K	O-VMQ-30-GR	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	

Gasket - TUBE, ETC-Cable	Y&K	O-VMQ-30-GR	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Gasket - BUSHING- Cable	Namyang Vina	O-VMQ-40-GR	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 0.2 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
PWB	EXPRESS ELECTRONICS LTD	14MV0	Min. V-0, 130 deg. C	ZPMV2	UL (E157925)	
PWB - Alternate	Interchangeable	Interchangeable	Min. V-0, 130 deg. c	ZPMV2	UL	
FPWB	Interchangeable	Interchangeable	Min. V-2, 80 deg. C	ZPMV2 or ZPXK2	UL	
Outdoor Label	Interchangeable	Interchangeable	Suitable for use on each type of surface to which applied, rated for maximum and minimum surface temperature specified, or Min. 60 deg. C to Max -40 deg. C if not specified.	PGDQ2 or PGJ12	UL	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Internal View
Photographs	03-04	Camera Module
Photographs	03-05	IR Detector Board - Top
Photographs	03-06	IR Detector Board - Bottom
Photographs	03-07	Network Board - Top
Photographs	03-08	Network Board - Bottom
Photographs	03-09	Power Board - Top
Photographs	03-10	Power Board - Bottom
Diagrams	04-01	Diagram
Manuals	06-01	Manual
Miscellaneous	07-01	Transformer (T1) Specification
Miscellaneous	07-02	Choke Coil (T7) Specification
Miscellaneous	07-03	Label

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



3	MODEL 2	
2	TNO-C3012TRA/C3022TR/C3032TRA	'23.10.23
1	TNO-C3010TRA/C3020TR/C3030TRA	'23.10.23
No.	MODEL NAME	DATE
Unit:mm[inch]	SCALE:1/1	Hanwha Vision

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

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. Unplug this apparatus during lighting 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. This product is intended to be supplied by a UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from 12 Vdc 0.78 A / PoE (48v Vdc), 0.23 A.
16. This product is intended to be supplied by isolation power.
17. If you use excessive force when installing the product, the camera may be damaged and malfunction. If you forcibly install the product using non-compliant tools, the product may be damaged.
18. 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.
19. 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.
20. If you install/disassemble the product in a manner that has not been recommended, the production functions/ performance may not be guaranteed. Install the product by referring to "Installation & connection" in the user manual.
21. Installing or using the product in water can cause serious damage to the product.



22. Although a rapid change in temperature could cause frost inside the glass, there will be no problem with the video.
23. 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.
24. The operating temperature of the product is -40°C to +60°C (-40°F ~ +140°F).

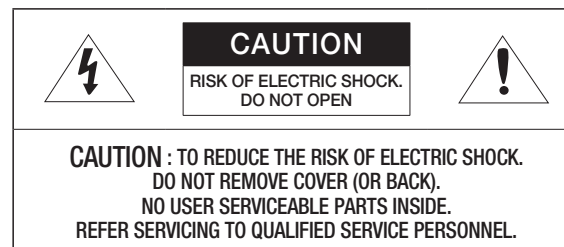
WARNING

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.

Class I construction

An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

Battery

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.

Disconnection Device

Disconnect the main plug from the apparatus, if it's defected. And please call a repair man in your location.

When used outside of the U.S., it may be used HAR code with fittings of an approved agency is employed.

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.

CAUTION

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.

Please use the input power with just one camera and other devices must not be connected.

The Micro USB port of the product is provided for easier installation, and is not recommended for monitoring purposes.

When a new product box is opened (or during the initial use of the product), moisture might build up on the glass of the camera. The built-up moisture disappears naturally within a few hours after powered on.

Do not arbitrarily loosen or tighten the gore valve.

The ITE is to be connected only to PoE networks without routing to the outside plant.

The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3af 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.

Please read the following recommended safety precautions carefully.

- Do not place this apparatus on an uneven surface.
- Do not install on a surface where it is exposed to direct sunlight, near heating equipment or heavy cold area.
- Do not place this apparatus near conductive material.
- Do not attempt to service this apparatus yourself.
- Do not place a glass of water on the product.
- Do not install near any magnetic sources.
- Do not block any ventilation openings.
- Do not place heavy items on the product.
- Please wear protective gloves when installing/removing the camera.
The high temperature of the product surface may cause a burn.

User's Manual is a guidance book for how to use the products.

The meaning of the symbols are shown below.

- Reference : In case of providing information for helping of product's usages
- Notice : If there's any possibility to occur any damages for the goods and human caused by not following the instruction

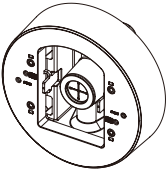
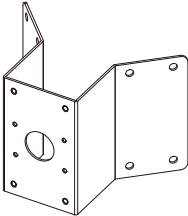
※ Please read this manual for the safety before using of goods and keep it in the safe place. We do not guarantee the quality of third-party products (e.g. lenses, accessories) that you separately purchase.

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.

If the screen freezes for about 1-2 seconds at a certain time interval or when there is a change in the temperature of the surrounding area, this is normal; the screen is simply undergoing a calibration process.

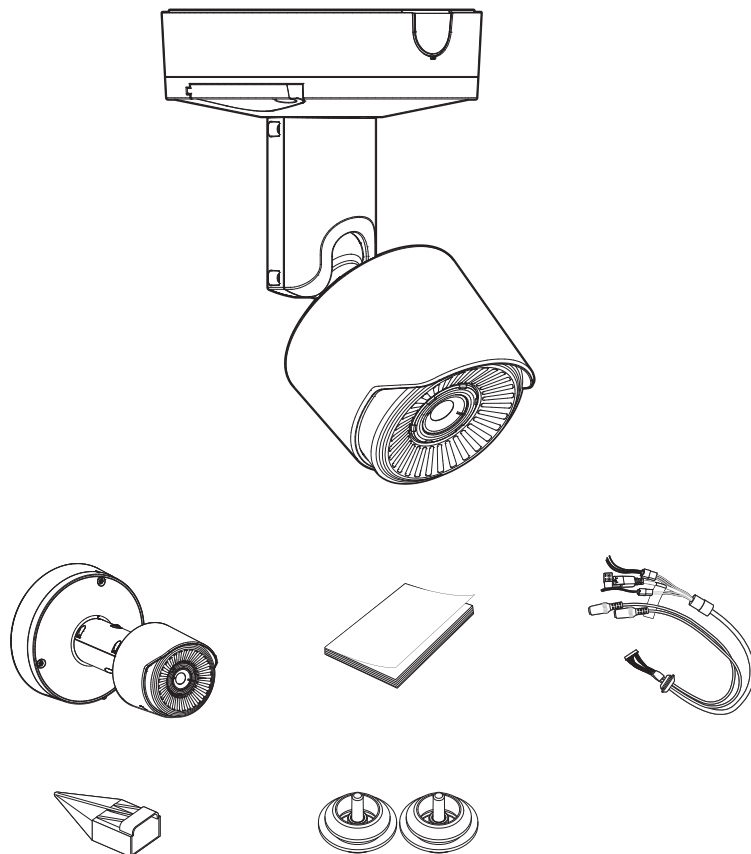
OPTIONAL ACCESSORIES FOR INSTALLATION

You can purchase appropriate optional accessories available.

Pole Mount	Corner Mount
 SBD-180PMW	 SBP-300KMW1

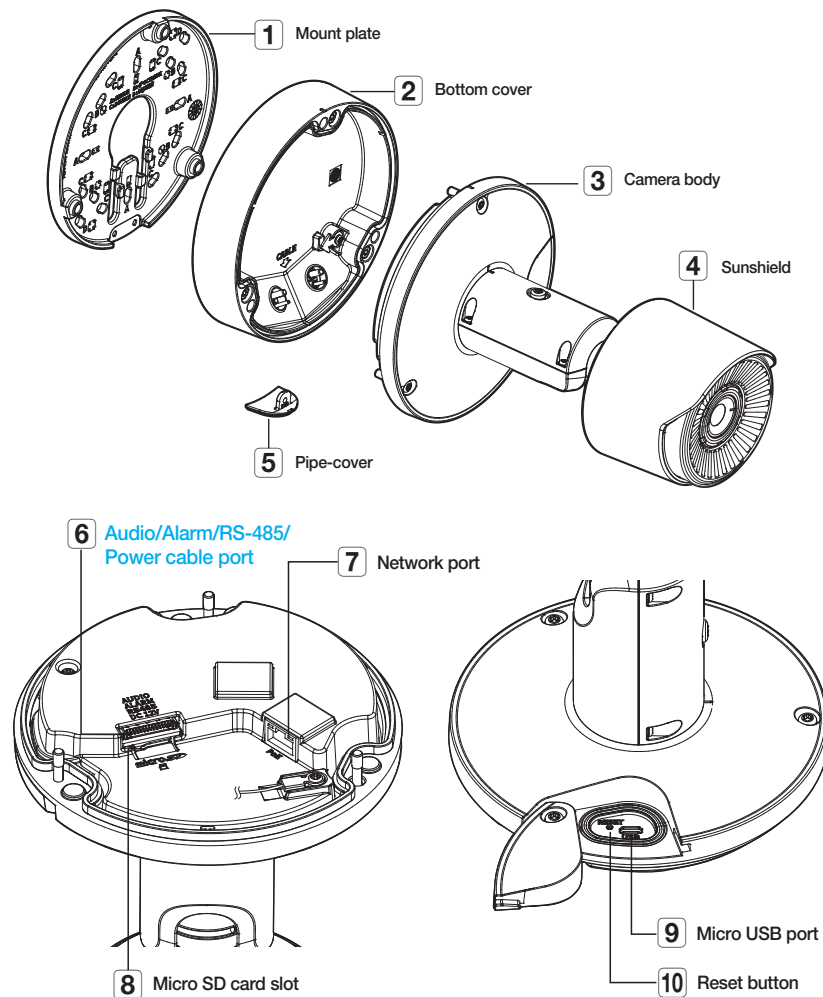
WHAT'S INCLUDED

As for each sales country, accessories are not the same.



- Use installation screws of at least M4, L30 for the installation of this product.

AT A GLANCE



- Wipe out a dirty surface of the lens softly with a lens tissue or cloth to which you have applied ethanol.

INSTALLATION



- This camera is waterproof and in compliance with the IP66 spec, but the jack connected to the external cable is not. You are recommended to install this product below the edge of eaves to prevent the cable from being externally exposed.

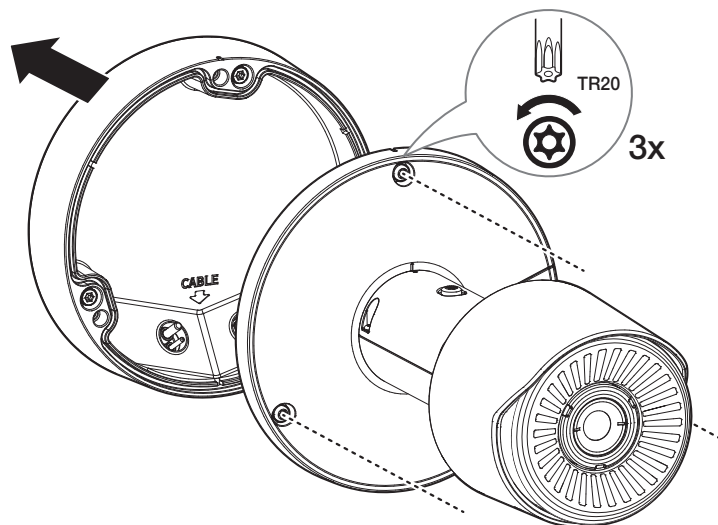
Precautions before installation

Ensure you read out the following instructions before installing the camera:

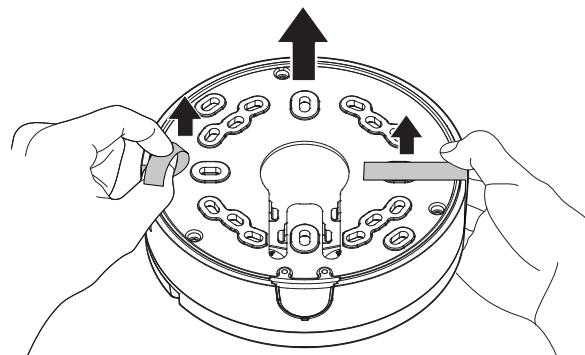
- Select an installation site that can hold at least 5 times the camera's weight.
- Stuck-in or peeled-off cables can cause damage to the product or a fire.
- For safety purposes, keep anyone else away from the installation site. And put aside personal belongings from the site, just in case.
- If the product is installed with excessive force, it may cause damage to the camera due to malfunction. Forcing assembly using non-compliant tools may damage the product.

Disassembling

1. Remove the bottom cover by turning the bottom cover's fastening screws on the camera body counterclockwise.
 - Note that it is not necessary to loosen the screws completely.

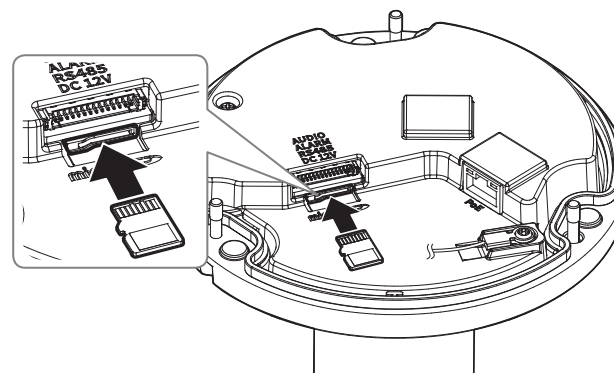


2. Remove the fixing tape from the bottom cover and mount plate, and then remove the mount plate.

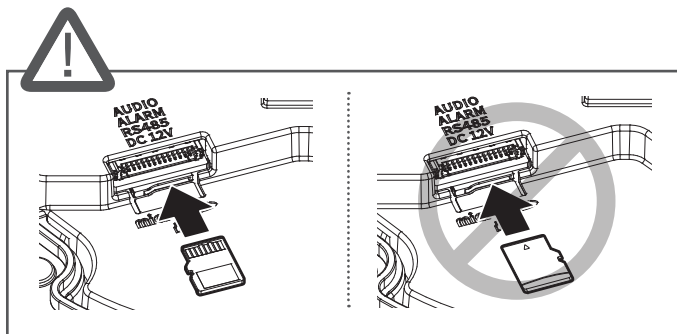


Inserting a Micro SD card

Slide the Micro SD card into the Micro SD card slot on the camera module in the direction of the arrow.



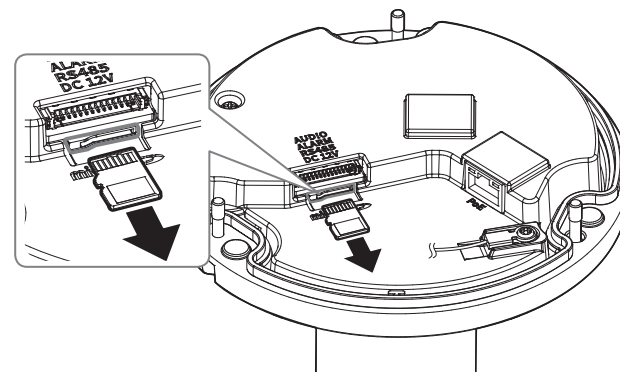
- Do not forcefully insert it in the reverse direction. It might damage your Micro SD card and your product.



- Before installing the camera, the Micro SD card should be inserted while the power source and the body are separated.
- When it rains or the humidity is high, insertion or ejection of a Micro SD card is not recommended.
- When installing/removing the Micro SD card, make sure you put the product body on a flat ground before working on it in order to prevent accidents due to loss or drop of any parts.

Removing a Micro SD card

Gently press down on the exposed end of the Micro SD card as shown in the diagram to eject the Micro SD card from the slot.

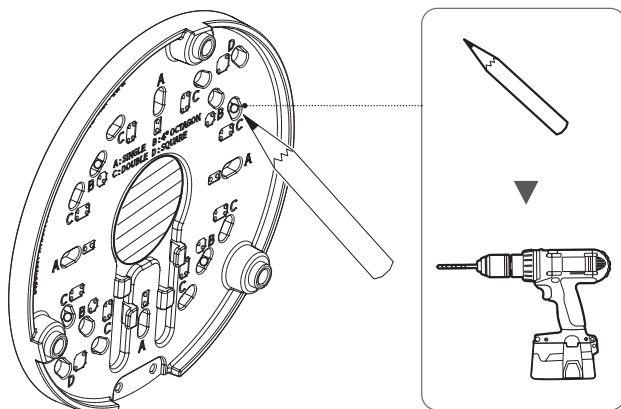


- Before removing the Micro SD card, in <Setup (⚙️)>-<Event>-<Storage>, set the device to <Off> and press the [Apply] button and turn the camera off.
- If you turn off the camera or remove the Micro SD card that contains data from the product, the data may be lost or damaged.

Installation (Mount plate)

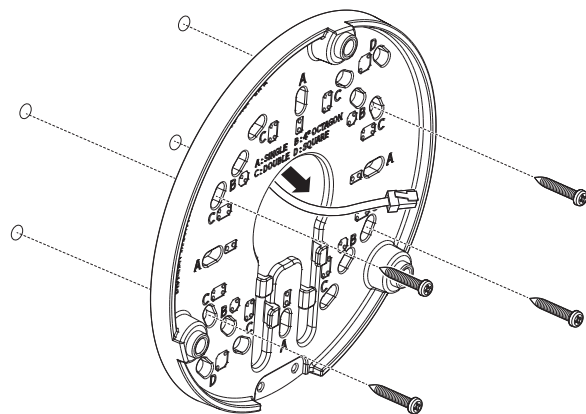
[Directly installing on wall/ceiling]

- 1-1. Place the mount plate on the desired location considering the direction to be monitored, mark the locations for the screw holes and cable holes, and then drill the holes.



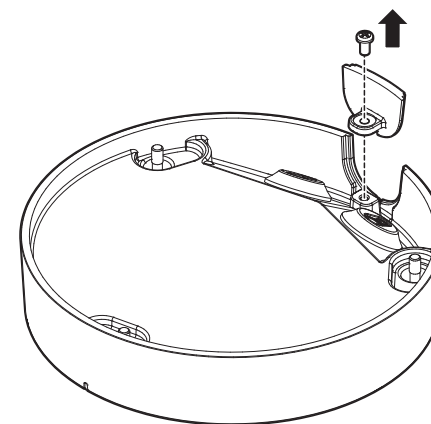
- 1-2. Fix the Mount plate using appropriate screws.

- 1-3. Pull out necessary cables among network/audio/alarm/RS-485/power cables through the hole in the Mount plate.



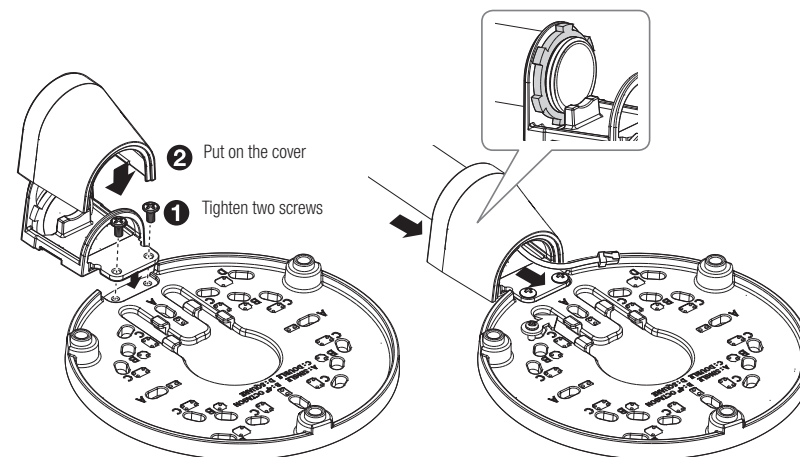
[Installing using pipe]

- 2-1. When installing it using a pipe, you can do so after removing the wiring hole cover on the bottom of the product. Use a Phillips screwdriver to remove the fixing screws from the bottom cover and detach the wiring hole cover.



- 2-2. Join the conduit adaptor (SBP-060BA, separately sold) to the mount plate.

- 2-3. Mount the pipe to the conduit adaptor.



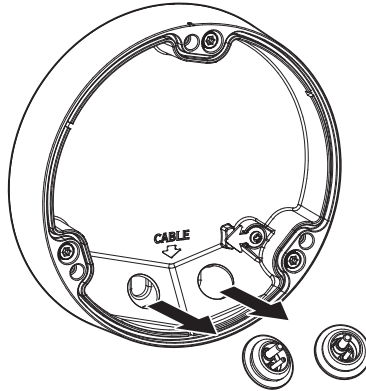
- 2-4. Fix the mount plate using appropriate screws.

- 2-5. Pull out necessary cables among network/audio/alarm/RS-485/power cables through the pipe.

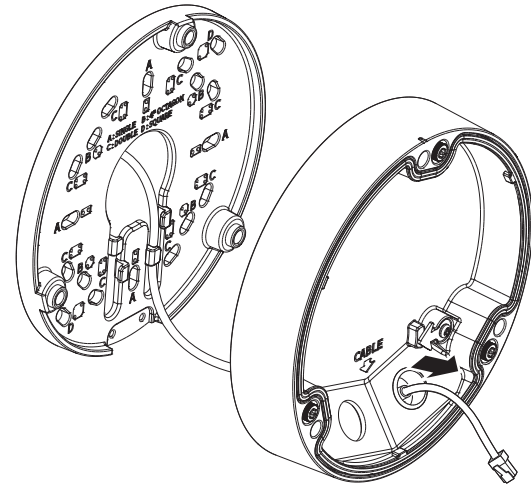
Installation (Bottom cover)

- ! ■ Use a cable bushing compliant with the network cable to be connected.
 - Camera main: use a cable with the diameter of Ø5 to 6.5
- You can only use a network cable with a diameter of Ø6.5 or less.

1. Remove the cable bushing from the Bottom cover.



2-3. Mount the cable bushing to the Bottom cover.

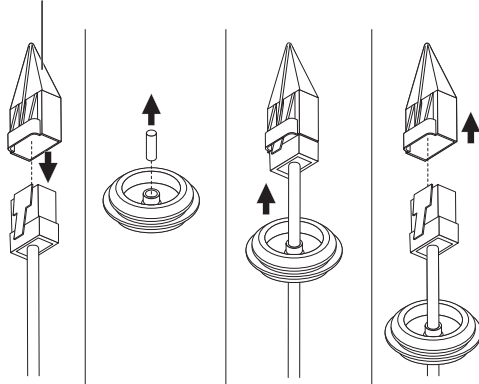


[Installing the network cable] (IP66)

2-1. Pull off the extruded part of the 1-hole cable bushing provided.

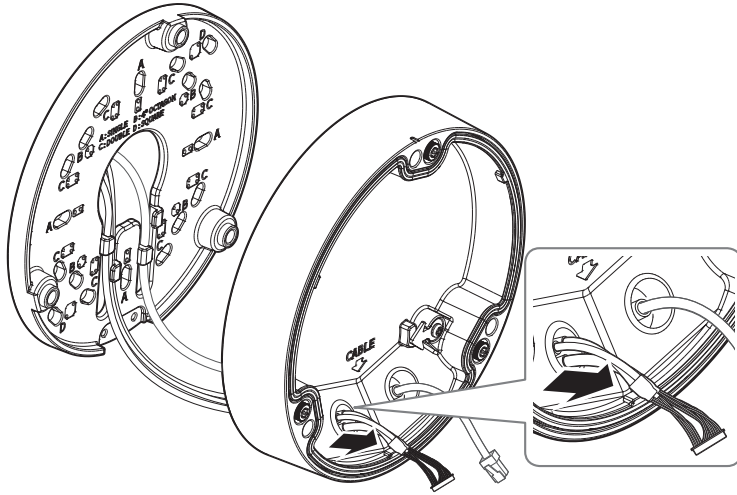
2-2. Use the cap installer to pass through the RJ45 cable.

Cap Installer



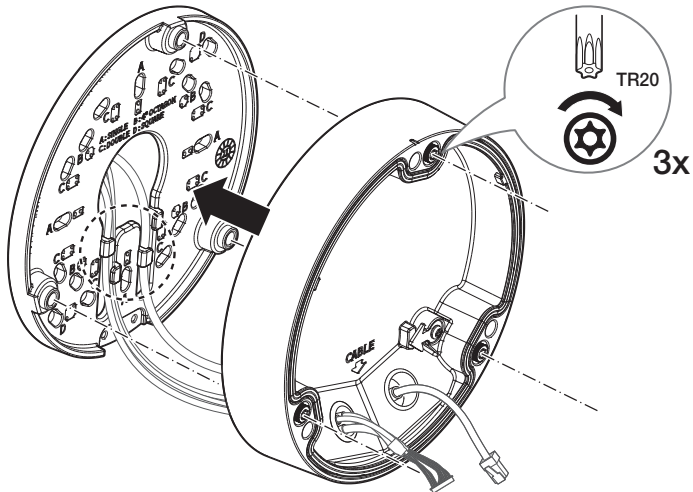
[Installing audio/alarm/RS-485/power cables]

3. Mount the cable bushing of the provided [audio/alarm/RS-485/power](#) cables to the Bottom cover.



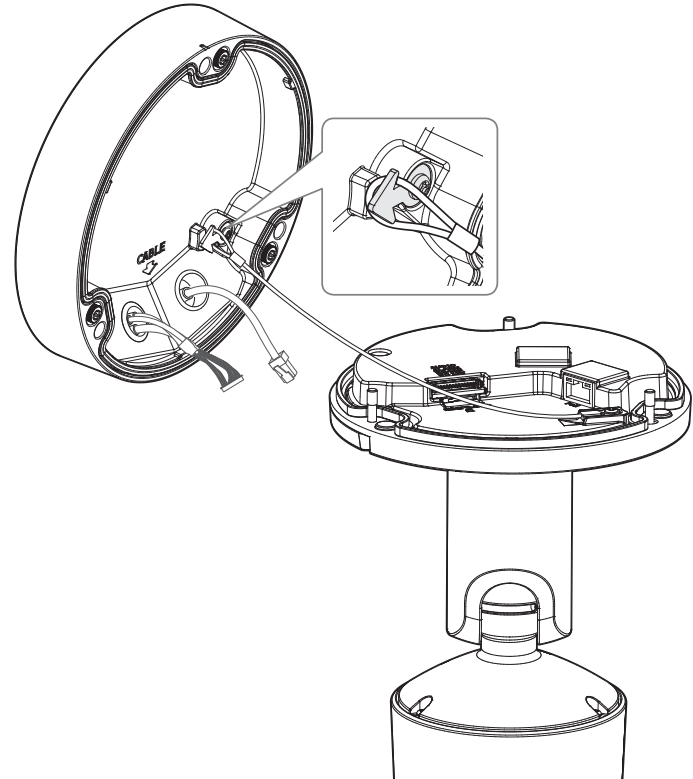
4. Join the Mount plate with the Bottom cover.

- ! ■ When attaching the bottom cover, make sure that the cables pass through the cable fixing hooks of the plate.



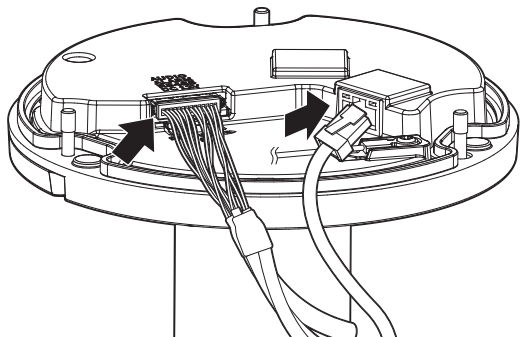
Installing the camera body

1. Hang the safety wire up on a hook inside the Bottom cover.

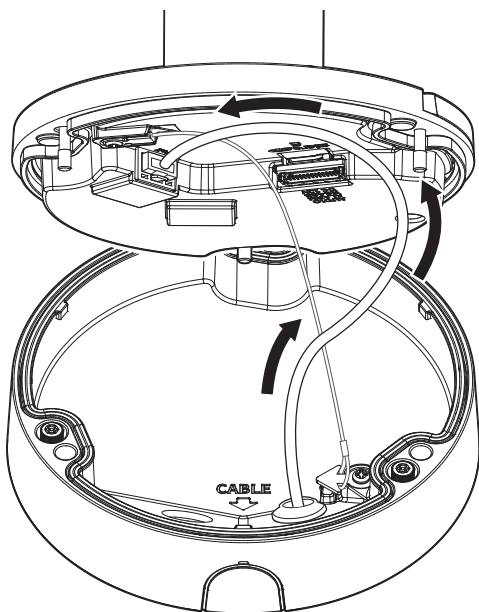


installation & connection

2. Connect the [network/audio/alarm/RS-485/power](#) cables to the terminal on the camera body.

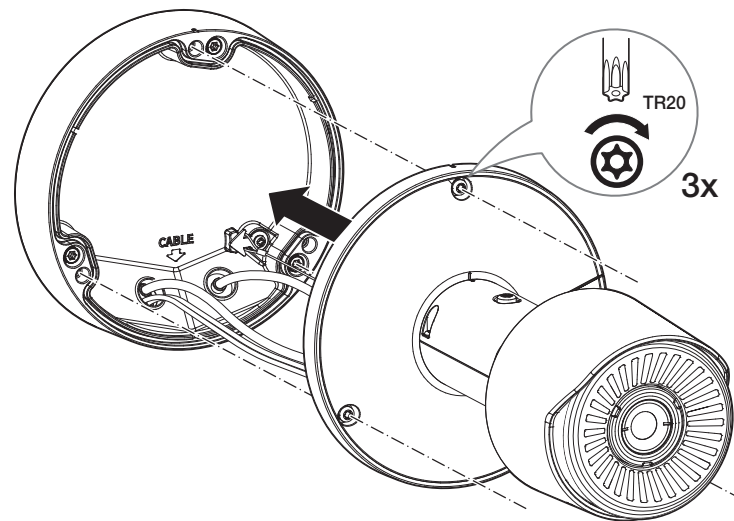


- ! ■ Place the network cable in a circular form as shown in the figure below.



3. Join the camera body with the Bottom cover.

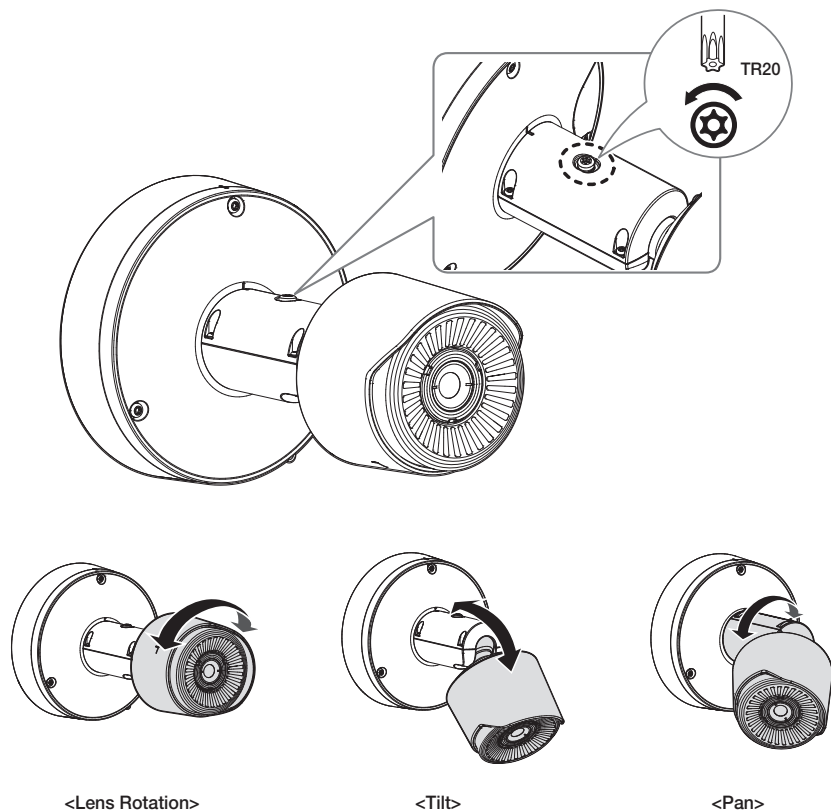
- ! ■ Make sure to firmly tighten the fastening screws so that there is no water damage issue.



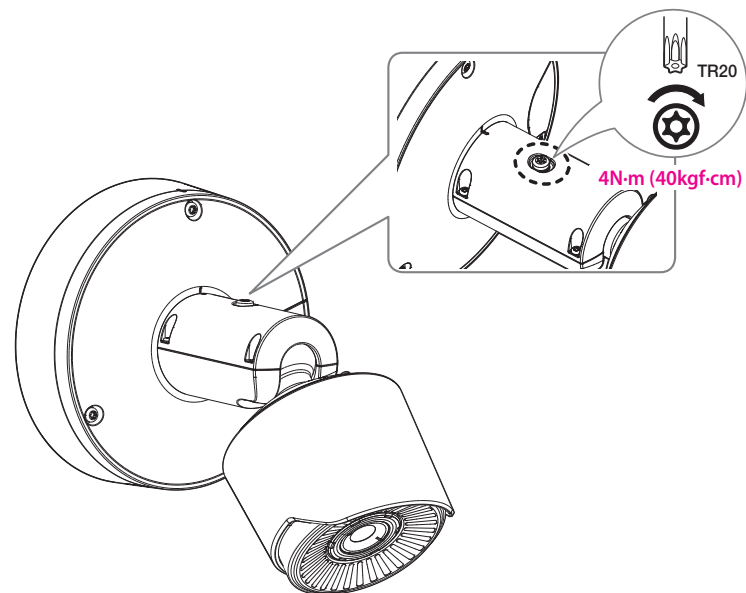
4. Loosen the fixing screws to adjust the monitoring direction of the camera.

- Note that it is not necessary to loosen the screws completely.
- Monitor and adjust the lens after connecting a monitoring device to the USB port for installation.

- !
- When adjusting the camera monitoring direction, loosen the corresponding fixing screws, adjust the camera, and then tighten the screws. Forcibly adjusting the camera while the screws are fastened may cause scratches and malfunction.

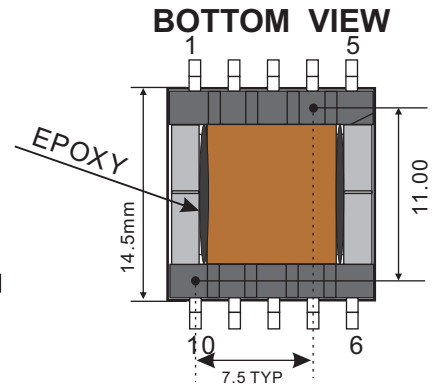
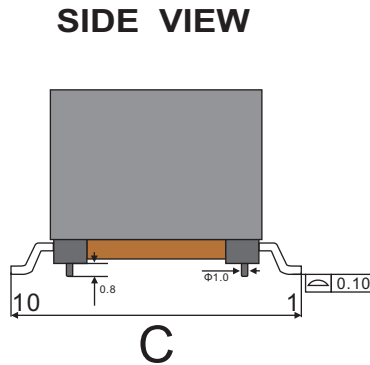
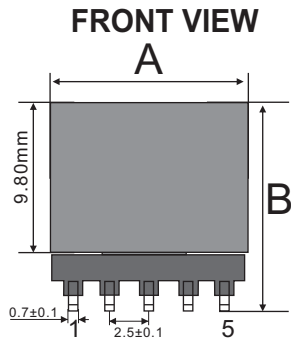


5. After adjusting the camera orientation, tighten the orientation screw on the camera body to secure it as shown in the figure below.



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

2. Mechanical Dimensions:



Note:

- 1.Wrap 2Ts of 7mm kapton tape around the finished part.
- 2.Fixed the cores with glue,and fixed the case with glue.

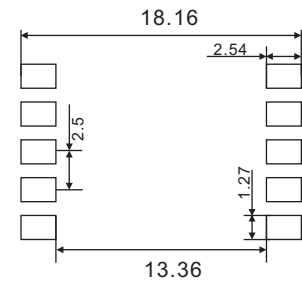
Unit: mm

A MAX	B MAX	C MAX
15.2	14.0	17.8

Marking information



Suggested PCB Paad Layout



3. Electrical Characteristics :

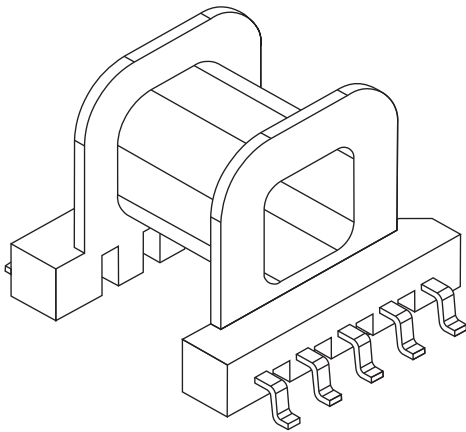
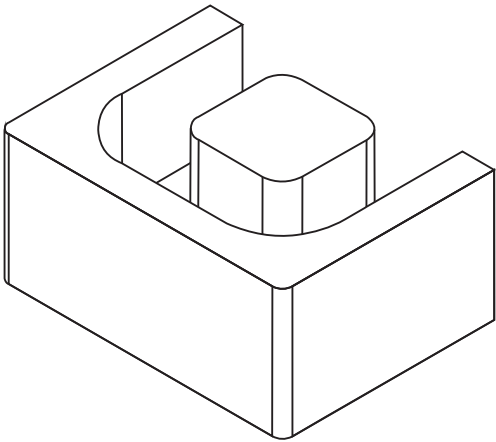
Specifications: at 25°C.		Operating Temperature -40 to +105°C*	
NO.	ITEM	TEST CONDITION	SPECIFICATION
1	Inductance	(1-3) @100KHz, 1.0V	21.0uH ±10%.
2	Leakage Inductance	(1-3) @100KHz, 1.0V with shorted other pins.	0.30uH Max.
3	DCR	(1-3) @ 25°C	35.0mΩ Max.
4		(9-6) @ 25°C	58.0mΩ Max..
5		(10-7) @ 25°C	58.0mΩ Max.
6		(4-5) @ 25°C	180.0mΩ Max.
7	HI-POT	PRI TO SEC	2250Vac 5mA 3Sec.
8	TURN RATIO	(1-3):(9-6):(10-7)	1.0:0.67:0.67±2%.
9	TURN RATIO	(1-3):(4-5)	1.0:0.75±2%.
10	INSULATION RESISTANCE	PRI--SEC DC500V	100MΩ Min.
11		PRI--CORE DC500V	100MΩ Min.
12		SEC--CORE DC500V	100MΩ Min.

*Remark:Product surface temperature:-40 to +125°C,at 25°C.

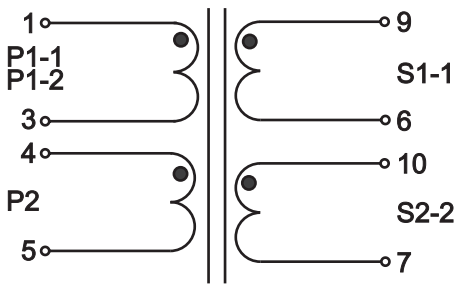
5.Winding Information:

WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
P1-1	1--3	2*0.25mm 2UEW	12	1T w8.0mm (kapton tape)	N/A	N/A	1
S1-1	9--6	2*0.35mm 2UEW R	8	1T w8.0mm (kapton tape)	N/A	N/A	1
P1-2	1--3	2*0.25mm 2UEW N	12	1T w8.0mm (kapton tape)	N/A	N/A	1
S1-2	10--7	2*0.35mm 2UEW	8	1T w8.0mm (kapton tape)	N/A	N/A	1
P2	4--5	0.25mm 2UEW	9	1T w8.0mm (kapton tape)	N/A	N/A	1

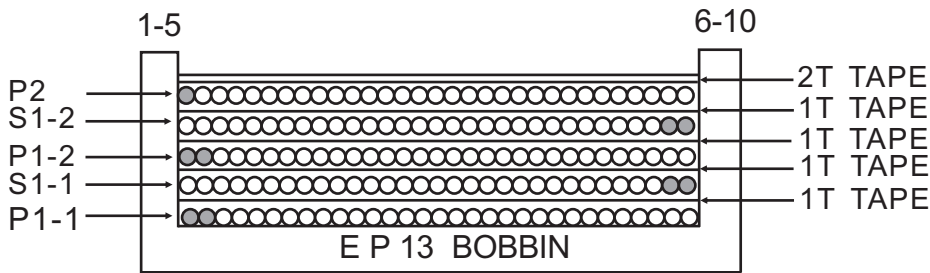
NOTE :
1. -Place the bobbin pin 1 left side of operator.



6.Schematic:



7.Winding construction



● :Start terminal

8.Material List:

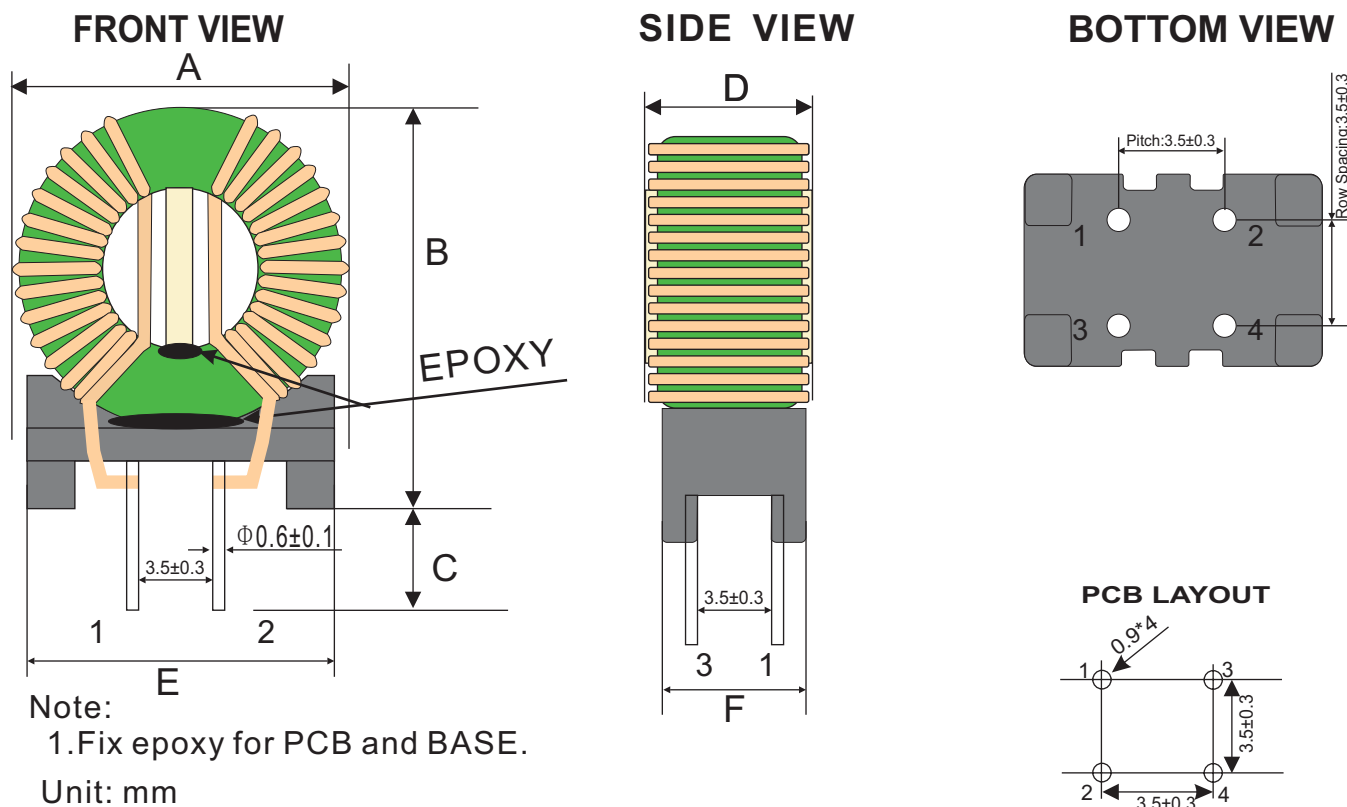
NO.	ITEM.	MATERIALS	SUPPLIERS/MANUFACTURES	UL FILE NO.
1	BOBBIN	PHENOLIC T375J UL RATING: 94V-0	CHANG CHUN PLASTIC CO LTD.	QMFZ2.E59481
2	CORE	TP2A	TTS Technology Co.,Ltd.	N/A
3	WIRE	xUEW 180	SUNTEK HOLDINGS Co.,Ltd.	OBMW2.E234867
4	TAPE	ADHESIVE POLYESTER TAPE TAPE NO.:CT*(c)(g) THERMAL RATING:130°C yellow tape: for inner coils	Jiang Jiang yahua pressure sensitive glue Co., Ltd	E165111
5	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co., Ltd	N/A
6	Glue	E-500(xx)	Dong Guan city eatto electronic material Co.,Ltd	QMFZ2.E218090
7	CASE	PHENOLIC T375J UL RATING: 94V-0	CHANG CHUN PLASTIC CO LTD.	QMFZ2.E59481

9.PACKING INFORMATION:

DESCRIPTION	QTY
PIECES PER REEL	150
PIECES PER POCKET	1
PIECES PER BOX	450
REEL PER BOX	3
GROSS WEIGHT PER BOX(KG)	TBD
NET WEIGHT PER BOX(KG)	TBD

The following Page(s) are related to Miscellaneous-02. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

2. Mechanical Dimensions:



A	B	C	D	E	F
+/-1.0	+/-0.5	+/-0.5	+/-1.0	+/-0.5	+/-0.5
12.0	14.3	3.8	7.0	9.0	5.8

3. Electrical Characteristics :

Specifications: at 25°C. Operating Temperature -40 to +125°C

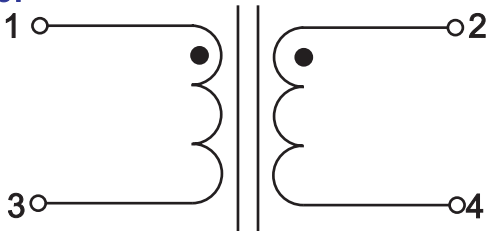
NO.	ITEM	TEST CONDITION	SPECIFICATION	REMARKS
1	Rated Voltage	Line to Line	AC250V	
2	Inductance	(1-3)(2-4) @16KHz, 1.0V	18mH+50% -30%	TH-2819
3	DCR	(1-3)(2-4) @25°C	500.0mΩ Max.	TH-2819
4	HI-POT	(1-3) to (2-4)	1500Vac, 1mA, 2SEC.	RK2670A
5	Rated current	@70°C	0.50A.	
6	ΔL	L(1-3)-L(2-4) @16KHz, 1.0V	0.60mH Max.	TH-2819

Remark: Use manual trigger mode of instrument for test.

4. Winding Information:

WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
1	1---3	0.25mm 2UEW	67±3.0T.				
2	2---4	0.25mm 2UEW	67±3.0T.				

5.Schematic:



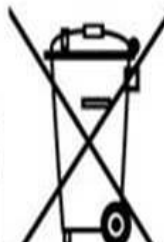
6.Material List

NO.	ITEM.	MATERIALS	SUPPLIERS/MANUFAXTURES	UL FILE NO.
1	CORE	T10*6*5 TTS-TH10	TTS TechnologyCo.,Ltd.	N/A
2	WIRE	POLYURETHANE ENAMELED TYPE NO: 2UEW /MW 82-C Φ0.25mm THERMAL RATING:180°C	ZHU HAI SUNTEK WIRE COLTD	OBMW2.E234867
3	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co.,Ltd	N/A
4	Glue	E-500(XX) (E-504H-1)	Dong Guan city eatto electronic material Co.,Ltd	QMFZ2.E218090
5	BASE	PHENOLIC T375J UL RATING: 94V-0	CHANG CHUN PLASTICS CO LTD.	QMFZ2.E59481

7.Packing Information:

DESCRIPTION	QTY
PIECES PER CELL	1
PIECES PER TRAY	560
PIECES PER BOX	3360
GROSS WEIGHT PER BOX(KG)	10.14(kg)
NET WEIGHT PER BOX(KG)	9.50(kg)





NETWORK THERMAL CAMERA,TN0-C3032TRA

DC 12V $\overline{\text{---}}$ 0.78A /
PoE (48V $\overline{\text{---}}$) 0.23A

M/C: TN0-C3032TRA/KEX Fac.ID:D



DATE S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
Made in Korea

Rainproof Étanche
IP66









