



FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT
(AZOT, AZOT7)

Manufacturer:	SEE ADDENDUM FOR MANUFACTURER LOCATIONS
Applicant: (813307-003)	105140 (Party Site) Hanwha Vision Co Ltd 6, Pangyo-ro 319beon-gil, Bundang-gu Seongnam-si Gyeonggi-do 13488 KR
Listee/Classified Company: (813307-003)	105140 (Party Site) SAME AS APPLICANT

Use of the Mark

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party. The UL Contracting Party for Follow-Up Services is listed in the addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

It is the responsibility of the Applicant, Manufacturer(s), and Listee/Classified Company to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

Additional Responsibilities

Additional responsibilities, duties and requirements for the Applicant and Manufacturers are defined under Additional Resources at the following website: <https://www.ul.com/fus>. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the Follow-Up Service Terms referenced below, please contact UL's Customer Service at <https://www.ul.com/aboutul/locations/>, select a location and enter your request, or call the number listed for that location.

Acceptance of Follow-Up Services

The Applicant and the specified Manufacturer(s) and any Listee/Classified Company in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable service agreement is a Global Services Agreement ("GSA"), the Applicant, the specified Manufacturer(s), and any Listee/Classified Company will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of a) use of the prescribed UL Mark, b) acceptance of the factory inspection, or c) payment of the Follow-Up Service fees. The Service Agreement incorporates such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking the following link: <https://www.ul.com/resources/contracts/follow-up-service-terms>. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

Use and Ownership of the Follow-Up Service Procedure

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the Applicant, the specified Manufacturer(s), and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding

that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

Definition of Terms

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

No Third Party Liability

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

Certification Body

UL LLC has signed below solely in its capacity as the certification body to indicate that this Follow-Up Service Procedure fulfills the requirements for certification documentation issued by the certification body. The certification body's accreditation status for the applicable certification scheme and identification of the accreditation body can be found at <https://www.ul.com/resources/accreditation>.

Deborah Jennings-Conner
VP Regulatory Services
UL LLC

LOCATION

135422 (Party Site)
D-TECH CO LTD
173-25 Saneop-ro Gwonseon-gu
Suwon-si Gyeonggi-do 16648 KR
Factory ID: D
UL Contracting Party for above site is: UL GmbH

1846102 (Party Site)
HANWHA VISION VIETNAM COMPANY LIMITED
Lot O-2 Que Vo Industrial Zone extended area Nam Son Ward
Bac Ninh VN
Factory ID: V
UL Contracting Party for above site is: UL GmbH

2467434 (Party Site)
KCE Co Ltd
KCE B/D 34, Annam-ro 369beon-gil Bupyeong-gu
Incheon 21312 KR
Factory ID: C
UL Contracting Party for above site is: UL GmbH

(100578-786) 241273 (Party Site)
OIC KOREA CO LTD
5F, 12 Annam-ro 369beon-gil Bupyeong-gu
Incheon 21312 KR
Factory ID: O
UL Contracting Party for above site is: UL GmbH

2637173 (Party Site)
KOSTEM CO.,Ltd.
4-74, 228, Haan-ro
Gwangmyeong-si Gyeonggi-do KR
Factory ID: KOS
UL Contracting Party for above site is: UL GmbH



Multiple Listing Correlation Sheet

ML FILE NO. E482654

Issued: 2022-11-30
Revised: 2023-03-21

MULTIPLE LISTING
of
AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT
(AZOT, AZOT7)
for

[1566244] QOGNIFY LTD

Basically Listed for:

[105140] HANWHA VISION CO LTD

MARKING: Same as that described in Follow-Up Service Procedure and/or Report except for Multiple Listee's name, file number, Trademark / Tradename, when applicable, and product designation. The Control Number remains 9T96.

LITERATURE: If literature is packaged with the Multiple Listed product(s) it shall be in compliance with the requirements outlined in the appropriate UL Standard(s).

Basically Listed products covered by Procedure and/or Reports under File No. E158873, Volume X13

Products Covered	Report Date	Basic Applicant's (Supplier's) Product Designation	Multiple Listee's Product Designation
NETWORK VIDEO ENCODER	A6125-UL	SPE-1630	NVE4016

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Product Type	Model/Type Reference	Report Reference #	Status
NETWORK VIDEO RECORDER	XRN-6410B4, XRN-3210B4	E158873-A6027-UL	
NETWORK VIDEO RECORDER	PRN-6410B4, PRN-3210B4, XRP-4210B4, PRN-6400B4, PRN-3200B4	E158873-A6028-UL	
NETWORK VIDEO RECORDER	XRN-6410DB4	E158873-A6029-UL	
NETWORK VIDEO RECORDER	PRN-6410DB4, XRP-4310DB4, PRN-6400DB4	E158873-A6030-UL	
NETWORK CAMERA	PNM-9002VQ	E158873-A6031-UL	
NETWORK CAMERA	XNF-9010RV, XNF-9010RVM, XNF-9010RS	E158873-A6032-UL	
NETWORK CAMERA	PNM-9000QB	E158873-A6033-UL	
NETWORK CAMERA	XNP-9300RW, XNP-8300RW, XNP-6400RW	E158873-A6034-UL	
NETWORK CAMERA	TNV-8010C, TNV-8011C	E158873-A6035-UL	
OUTDOOR NETWORK CAMERA	PNM-8082VT	E158873-A6036-UL	
THERMAL CAMERA	TNM-3620TDY	E158873-A6037-UL	
DIGITAL VIDEO RECORDER	HRX-1621* (* is Blank or N or P : P=PAL, N=NTSC)	E158873-A6038-UL	
NETWORK CAMERA	PNM-9022V	E158873-A6039-UL	
NETWORK CAMERA	PNM-9322VQP	E158873-A6040-UL	
DIGITAL VIDEO RECORDER	HRX-821* (* is Blank or N or P : P=PAL, N=NTSC)	E158873-A6041-UL	
NETWORK I/O BOX	SPM-4210	E158873-A6042-UL	
NETWORK VIDEO RECORDER	XRN-2011*, XRN-2010*, XRN-3010*, XRN-1610*, XRN-2010P/DM, XRN-3010P/DM, XRN-3010A, XRN-2011A, XRN-2010A, XRN-1610A (* is blank or N or P: N=NTSC, P=PAL)	E158873-A6043-UL	
PUBLIC VIEW MONITOR	SMT-2730PV	E158873-A6044-UL	
PUBLIC VIEW MONITOR	SMT-3230PV	E158873-A6045-UL	
CAMERA HOUSING	SHB-9000H	E158873-A6046-UL	
PUBLIC VIEW MONITOR	SMT-1030PV	E158873-A6047-UL	
NETWORK CAMERA	XNP-9250R, XNP-8250R, XNP-6400R	E158873-A6049-UL	
NETWORK CAMERA	XNP-9250, XNP-8250, XNP-6400	E158873-A6050-UL	
NETWORK CAMERA	ONO-9081R	E158873-A6051-UL	
NETWORK CAMERA	ONV-9081R	E158873-A6052-UL	
NETWORK VIDEO RECORDER	XRN-1620B2	E158873-A6053-UL	

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NETWORK VIDEO RECORDER	XRN-1620SB1	E158873-A6054-UL	
NETWORK VIDEO RECORDER	XRN-820S	E158873-A6055-UL	
NETWORK CAMERA	SCO-6020	E158873-A6056-UL	
NETWORK CAMERA	TNF-9010	E158873-A6057-UL	
NETWORK VIDEO RECORDER	PRN-3210B2, PRN-1610B2, XRN-6410RB2, XRN-3210RB2, XRN-6410B2, XRN-3210B2, PRN-3200B2, PRN-3205B2, PRN-1600B2, PRN-1605B2	E158873-A6058-UL	
NETWORK CAMERA	PNB-A6001	E158873-A6059-UL	
NETWORK CAMERA	PND-A6081RV, PND-A6081RF	E158873-A6060-UL	
NETWORK CAMERA	PNO-A6081R	E158873-A6061-UL	
LENS MODULE	SLA-T2480*, SLA-T2480V*, SLA-T4680*, SLA-T4680V*, SLA-T4680D, SLA-T4680DW, SLA-T4680DS, SLA-T2415, SLA-T2815B, SLA-T2480A, SLA-T2480VA, SLA-T4680A, SLA-T4680VA (* is blank or N or P: N = NTSC, P=PAL)	E158873-A6062-UL	
NETWORK CAMERA	PNV-A6081R	E158873-A6063-UL	
NETWORK CAMERA	XNB-6001*, XNB-H6240A, XNB-H6242A	E158873-A6064-UL	
NETWORK THERMAL CAMERA	TNO-3030T, TNO-3020T, TNO-3010T, TNO-3040T, TNO-3050T	E158873-A6067-UL	
NETWORK CAMERA	QNP-6320, QNP-6250, QNP-6251	E158873-A6068-UL	
NETWORK CAMERA	QNP-6320H, QNP-6250H, QNP-6251H	E158873-A6069-UL	
NETWORK CAMERA	XNV-C9083R, XNV-C8083R, XNV-C7083R, XNV-C6083R, XNV-C6083	E158873-A6070-UL	
NETWORK CAMERA	TID-600R	E158873-A6071-UL	
DIGITAL VIDEO RECORDER	HRX-1632, HRX-835	E158873-A6072-UL	
LED MONITOR	SMT-4343	E158873-A6073-UL	
NETWORK CAMERA	TNO-7180R, TNO-7180RLP	E158873-A6075-UL	
NETWORK CAMERA	XND-C9083RV, XND-C8083RV, XND-C7083RV, XND-C6083RV	E158873-A6076-UL	
NETWORK CAMERA	PNM-9031RV	E158873-A6077-UL	
NETWORK CAMERA	QNO-7082R	E158873-A6078-UL	
NETWORK CAMERA	QND-7082R	E158873-A6080-UL	
NETWORK CAMERA	QNV-7082R	E158873-A6081-UL	
NETWORK CAMERA	XNO-C9083R, XNO-C8083R, XNO-C7083R, XNO-C6083R	E158873-A6082-UL	
NETWORK CAMERA	XNV-9083R, XNV-8083R, XNV-8093R, XNV-6083R	E158873-A6083-UL	
NETWORK CAMERA	XND-9083RV, XND-8083RV, XND-8093RV, XND-6083RV	E158873-A6084-UL	
NETWORK CAMERA	QNO-7032R, QNO-7022R, QNO-7012R	E158873-A6088-UL	

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NETWORK CAMERA	XNB-9003, XNB-8003, XNB-6003	E158873-A6089-UL	
NETWORK CAMERA	XNO-9083R, XNO-8083R, XNO-6083R	E158873-A6091-UL	
NETWORK CAMERA	QNV-7012R, QNV-7022R, QNV-7032R	E158873-A6092-UL	
NETWORK CAMERA	QND-7012R, QND-7022R, QND-7032R	E158873-A6093-UL	
NETWORK CAMERA	QNP-6320R, QNP-6250R	E158873-A6094-UL	
NETWORK CAMERA	XNV-6123R	E158873-A6100-UL	
NETWORK CAMERA	XNO-6123R	E158873-A6101-UL	
NETWORK CAMERA	LNO-6072R	E158873-A6102-UL	
NETWORK CAMERA	LVN-6012R, LVN-6022R, LVN-6032R, ANV-L6012R	E158873-A6103-UL	
NETWORK CAMERA	LVN-6072R	E158873-A6104-UL	
NETWORK CAMERA	LND-6012R, LND-6022R, LND-6032R	E158873-A6105-UL	
NETWORK CAMERA	LND-6072R	E158873-A6106-UL	
NETWORK CAMERA	LNO-6012R, LNO-6022R, LNO-6032R, ANO-L6012R, ANO-L6022R	E158873-A6107-UL	
NETWORK CAMERA	ANO-L7022R, ANO-L7012R	E158873-A6108-UL	
NETWORK CAMERA	TNV-7010RC, TNV-7011RC	E158873-A6109-UL	
NETWORK CAMERA	ANV-L7012R	E158873-A6110-UL	
NETWORK CAMERA	XNZ-6320A	E158873-A6111-UL	
NETWORK CAMERA	QNP-6320HS	E158873-A6112-UL	
NETWORK CAMERA	PNM-A9083RVD, PNM-A7083RVD, PNM-C12083RVD, PNM-C7083RVD	E158873-A6113-UL	
NETWORK VIDEO RECORDER	ARN-1610S	E158873-A6114-UL	
NETWORK CAMERA	XNZ-L6320A	E158873-A6115-UL	
NETWORK VIDEO RECORDER	QRN-1630S, XRN-815S	E158873-A6116-UL	
NETWORK CAMERA	ANO-L7082R, ANO-L6082R	E158873-A6117-UL	
THERMAL NETWORK CAMERA	TNM-C4940TD, TNM-C4950TD, TNM-C4960TD	E158873-A6118-UL	
NETWORK CAMERA	ANE-L7012R, ANE-L6012R	E158873-A6119-UL	
NETWORK CAMERA	PNM-12082RVD, PNM-7082RVD	E158873-A6120-UL	
NETWORK CAMERA	ANV-L7082R, ANV-L6082R	E158873-A6121-UL	
DIGITAL VIDEO RECORDER	HRX-1635	E158873-A6122-UL	
DIGITAL VIDEO RECORDER	HRX-835A	E158873-A6123-UL	
NETWORK CAMERA	XNF-9013RV	E158873-A6124-UL	
NETWORK VIDEO ENCODER	SPE-1630	E158873-A6125-UL	
NETWORK VIDEO RECORDER	QRN-430S, ARN-410S	E158873-A6126-UL	
NETWORK VIDEO RECORDER	XRN-420S	E158873-A6127-UL	

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NETWORK VIDEO RECORDER	QRN-830S	E158873-A6128-UL	
NETWORK VIDEO RECORDER	ARN-810S	E158873-A6129-UL	
NETWORK CAMERA	XNV-9083RZ, XNV-8083RZ, XNV-6083RZ	E158873-A6130-UL	
DIGITAL VIDEO RECORDER	HRX-434	E158873-A6131-UL	
NETWORK CAMERA	XNV-8083Z, XNV-6083Z	E158873-A6132-UL	
NETWORK VIDEO ENCODER	SPE-420	E158873-A6133-UL	
NETWORK CAMERA	XNB-6002, XNB-H6244A	E158873-A6134-UL	
DIGITAL VIDEO RECORDER	HRX-435	E158873-A6135-UL	
DIGITAL VIDEO RECORDER	HRX-1634	E158873-A6136-UL	
VIDEO DECODER	SPD-152	E158873-A6137-UL	
NETWORK CAMERA	PNM-C9022RV	E158873-A6138-UL	
PENDANT SPEAKER	SPA-P100W, SPA-P100B	E158873-A6139-UL	
SECURITY LED MONITOR	SMT-2212	E158873-A6140-UL	
DIGITAL VIDEO RECORDER	ARD-1610	E158873-A6142-UL	
DIGITAL VIDEO RECORDER	ARD-810, ARD-410	E158873-A6144-UL	
NETWORK CAMERA	PNV-A6081R-E2T, PNV-A6081R-E1T	E158873-A6150-UL	
USB JOYSTICK CONTROLLER	SPC-2001	E158873-A6151-UL	
NETWORK CAMERA	MGC-D8080LI, MGC-D8080	E158873-A6153-UL	
NETWORK CAMERA	QNO-C9083R, QNO-C8083R	E158873-A6154-UL	
NETWORK CAMERA	QNV-C9083R, QNV-C8083R	E158873-A6155-UL	
NETWORK CAMERA	XNP-C9303RW, XNP-C8303RW, XNP-C6403RW	E158873-A6158-UL	
NETWORK CAMERA	XNP-C9253R, XNP-C8253R, XNP-C6403R	E158873-A6159-UL	
NETWORK CAMERA	XNP-C9253, XNP-C8253, XNP-C6403	E158873-A6160-UL	
NETWORK CAMERA	TNV-C7013RC	E158873-A6161-UL	
NETWORK CAMERA	MGC-F9010LI	E158873-A6162-UL	
NETWORK CAMERA	PNM-C32083RVQ, PNM-C16083RVQ	E158873-A6163-UL	
NETWORK CAMERA	QNV-C9011R, QNV-C8011R, QNV-C8012	E158873-A6164-UL	
ANALOG CAMERA	ACE-8020R, ACE-6020R	E158873-A6165-UL	
ANALOG CAMERA	ACV-8081R, ACV-8080R	E158873-A6166-UL	
ANALOG CAMERA	ACO-8020R, ACO-6020R	E158873-A6167-UL	
NETWORK CAMERA	ANE-L7012L	E158873-A6168-UL	
NETWORK CAMERA	PNM-C34404RQPZ	E158873-A6178-UL	

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 CAMERA
Model:	PNM-C34404RQPZ
Rating:	PoE (55 Vdc), 1.17 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

NETWORK CAMERA is designed for outdoor or indoor use, ceiling use with mounting brackets.

It is a commercial equipment supplied from UL listed PoE (Power over Ethernet) and installed by service personnel.

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	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)	50 Outdoor: minimum -40
IP protection class	IP 66
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)	6.10

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 Risk Group of a lamp or lamp system (including LEDs) is : RG 1
- ☐ 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 55 °C

Additional Information

4790840235

- Maximum Normal Load: Continuous operation (Operate the camera through networked equipment with IR LED on and fan operating.) + Optional features (Heater on / off)

Additional Standards

The product fulfills the requirements of: IEC 62471:2006

Markings and Instructions

Clause Title	Marking or Instruction Details
Optical radiation from lamps - Hazard-related risk group marking of equipment: Retinal thermal hazard, weak visual stimulus 780-1400 nm	"WARNING - IR emitted from this product." for Risk Group 1. "MISE EN GARDE - IR émis par ce produit." for Risk Group 1. Text on equipment is black on a yellow background. Reproduction in user manual is not required to be in color.
Optical radiation from lamps - Explanation of marking information and guidance on control measures: Retinal thermal hazard, weak visual stimulus 780-1400 nm	"Do not stare at operating lamp." for Risk Group 1. "Ne pas regarder fixement la lampe." for Risk Group 1.
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, dc, 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.~~)
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 PoE (55 Vdc), 1.17 A.

Website Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with 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
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
FIBER PoE Injector	CREATIVE LIANJIE NETWORK TECHNOLOGY CO LTD	PT-PSE109GBRO- AH-S	Rated output 55 Vdc, 1.5 A, marked "LPS" or "Class 2"	AZOT	UL (E487558)	
Enclosure Main cover (Plastic) - PTZ	MITSUBISHI ENGINEERING- PLASTICS CORP	S-2000V+(f1)	Min. 2.0 mm thickness, rated Min. V-2, 115 deg. C	QMFZ2	UL (E41179)	
Enclosure IR Cover (Plastic) - PTZ	LOTTE CHEMICAL CORPORATION	QC-122(+)(f1)	Min. 2.0 mm thickness, rated Min. V-2	QMFZ2	UL (E115797)	
Enclosure Cover Pan (Plastic) - PTZ	LOTTE CHEMICAL CORPORATION	UH- 1068(+)(f1)	Min. 1.5 mm thickness, rated Min. V-2	QMFZ2	UL (E115797)	
Cover Dome DECO (Metal) - SUB	Interchangeable	Interchangeable	Aluminum, Min. 3.0 mm thickness.	-	-	
ASSY COVER DOME (Plastic) - SUB (Part1)	MITSUBISHI ENGINEERING- PLASTICS CORP	S-2000V+(f1) (S2000VUR)	Min. 2.5 mm thickness, rated Min. V-2, 115 deg. C	QMFZ2	UL (E41179)	
ASSY COVER DOME (Plastic) - SUB (Part2)	SABIC JAPAN L L C	EXL9330(X)(f1)(GG) (B1)(IP)	Min. 2.5 mm thickness, rated Min. V-0, 115 deg. C	QMFZ2	UL (E207780)	
Cover dome IR (Plastic) - SUB (Part1)	LOTTE CHEMICAL CORPORATION	QC-122(+)(f1)	Min. 2.5 mm thickness, rated Min. V-2, 125 deg. C	QMFZ2	UL (E115797)	
Cover dome IR (Plastic) - SUB (Part2)	LOTTE CHEMICAL CORPORATION	HN-1068(+)(f1)	Min. 2.5 mm thickness, rated Min. V-0, 130 deg. C	QMFZ2	UL (E115797)	
Bottom Enclosure (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 3.0 mm thickness.	-	-	

Enclosure PoE connect cover (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 2.5 mm thickness.	-	-	
Internal Metal	Interchangeable	Interchangeable	Aluminum, Min. 3.0 mm thickness.	-	-	
Internal Plastic	LOTTE CHEMICAL CORPORATION	HN-1068(+)(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C	QMFZ2	UL (E115797)	
Internal Plastic - Alternate	Interchangeable	Interchangeable	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C	QMFZ2	UL	
Opto-coupler (PC1)	LITE-ON TECHNOLOGY CORP	LTV-1DXX(&)	Isolation Voltage: 5000. Max. Operation Temperature:110 deg. C	FPQU2	UL (E113898)	
Opto-coupler (PC1) -Alternate	EVERLIGHT ELECTRONICS CO LTD	EL101X-G	Isolation Voltage: 5000. Max. Operation Temperature: 110 deg. C	FPQU2	UL (E214129)	
Transformer(T1)	CLOVER Hi-Tech co., LTD.	PN042HTCA-9080VQ	100uH, 130 deg. C, See enclosure for more detail.	-	-	
Transformer(T1) - Alternate	COREPLUS CO LTD	PN042HTCA-9080VQ	100uH, 130 deg. C, See enclosure for more detail.	-	-	
Transformer(T1) - Alternate	SHANDONG WUSONG ELECTRONIC TECHNOLOGY	PN042HTCA-9080VQ	100uH, 130 deg. C, See enclosure for more detail.	-	-	
Line Filter (LF1)	TNC CO., LTD	QV181610A	7.0mH, 130 deg. C, See enclosure for more detail.	-	-	
Line Filter (LF2)	TNC CO., LTD	CVA6011RNF2	11 uH, 150 deg. C, See enclosure for more detail.	-	-	

Line Filter (LF2) - Alternate	HEFEI PHOENIX ELECTRONICS TECHNOLOGY CO LTD	CVA60111RNF2	11.0 uH, 150 deg. C, See enclosure for more detail.	-	-	
Bar Choke Coil (L1)	BOSUNG ELECTROCIS CO.	1420969	2 uH, 155 deg. C, See enclosure for more detail.	-	-	
Bar Choke Coil (L1) - Alternate	Trigon Electronics (KunShan) Limited	1420969	2 uH, 130 deg. C, See enclosure for more detail.	-	-	
Heatsink (HS1, HS2)	Interchangeable	Aluminum	Approx. 45.0mm by 20.0 mm by 10.0 mm, Min. 0.05 mm thickness, secured on PCB by soldering	-	-	
DC Fan 1 - PTZ	HUI TONG ELECTRONIC CO LTD	HTD-040(X)12M	12 Vdc, 0.07 A, 4000 RPM (N/15000+K/2400 = 0.275738 < 1, N=4000, K=21.7728)	GPWV2	UL (E311396)	
DC Fan 2 - PTZ	HUI TONG ELECTRONIC CO LTD	HTD-025(X)12L	12 Vdc, 0.06 A, 9500 RPM (N/15000+K/2400 = 0.275738 < 1, N=9500, K=21.7728)	GPWV2	UL (E311396)	
DC Fan 3 - SUB	DONGGUAN PROTECHNIC ELECTRIC CO LTD	MB(a)5112X(e)-(f)15-IP68	12 Vdc, 0.21 A, 6000 RPM (N/15000+K/2400 = 0.41089 < 1, N=6000, K=26.136)	GPWV2	UL (E187236)	
Pan / Tilt Motor (Stepping motor)	DONGGUAN SHINANO MOTOR CO., LTD.	STH-42C2010	Rated 12 Vdc, 1.0 A Hybrid stepping type.	-	-	
Pan / Tilt Motor (Stepping motor)	ASPINA DONGGUAN SHINANO MOTOR CO., LTD.	STH-36C0068-01	Rated 12 Vdc, 0.4 A Hybrid stepping type.	-	-	
Zoom/lens motor 1 (Stepping motor)	NIDEC SANKYO CORPORATION	MSEV020G65	Rated 5.0Vdc	-	-	

Stepping motor	VIDE TECHNOLOGY CO.,LTD	VGSM1558	Rated 12 Vdc	-	-	
ABF Motor (4ea)	FDK MECHATRONICS CO.,LTD.	SMC10-2007-A	Rated 5 Vdc	-	-	
Focus motor(Stepping motor) (3ea)	TOKYO MICRO INC.	8S-173L99S	Rated 5.0 Vdc	-	-	
Zoom motor, Focus motor (Stepping motor)	DongGuan YuTong Optical Technology Co., Ltd.	YT0W1X55FB.ICR-8MP	Rated 5.0 Vdc	-	-	
Zoom motor, Focus motor (Stepping motor)	TAMRON CO., LTD.	DF033N0000	Rated 5.5 Vdc	-	-	
Rechargeable battery (BAT1) (Drive board)	FDK CORPORATION	ML614R-TT31	Lithium, Rechargeable, Max Charging Voltage, 5 V dc, Max Charging current: 300 mA	BBCV2	UL (MH13421)	
Rechargeable battery (BAT1) (Sub board)	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 (Drive board)	Interchangeable	Interchangeable	Diode (D3, 80 V, 100 mA) and Resistor (R22, 3.3Kohm) in series	-	-	
Lithium Battery Protection Circuit (Sub board)	Interchangeable	Interchangeable	Diode (D4, 80 V, 100 mA) and Resistor (R24, 3.3Kohm) in series	-	-	
Heater (R2 to R22) (21ea) (PTZ)	Interchangeable	Interchangeable	5.6 ohm, 0.14W each	-	-	
Heater (R1 to R16) (16ea) (SUB)	Interchangeable	Interchangeable	10 ohm, 1/4 W each	-	-	

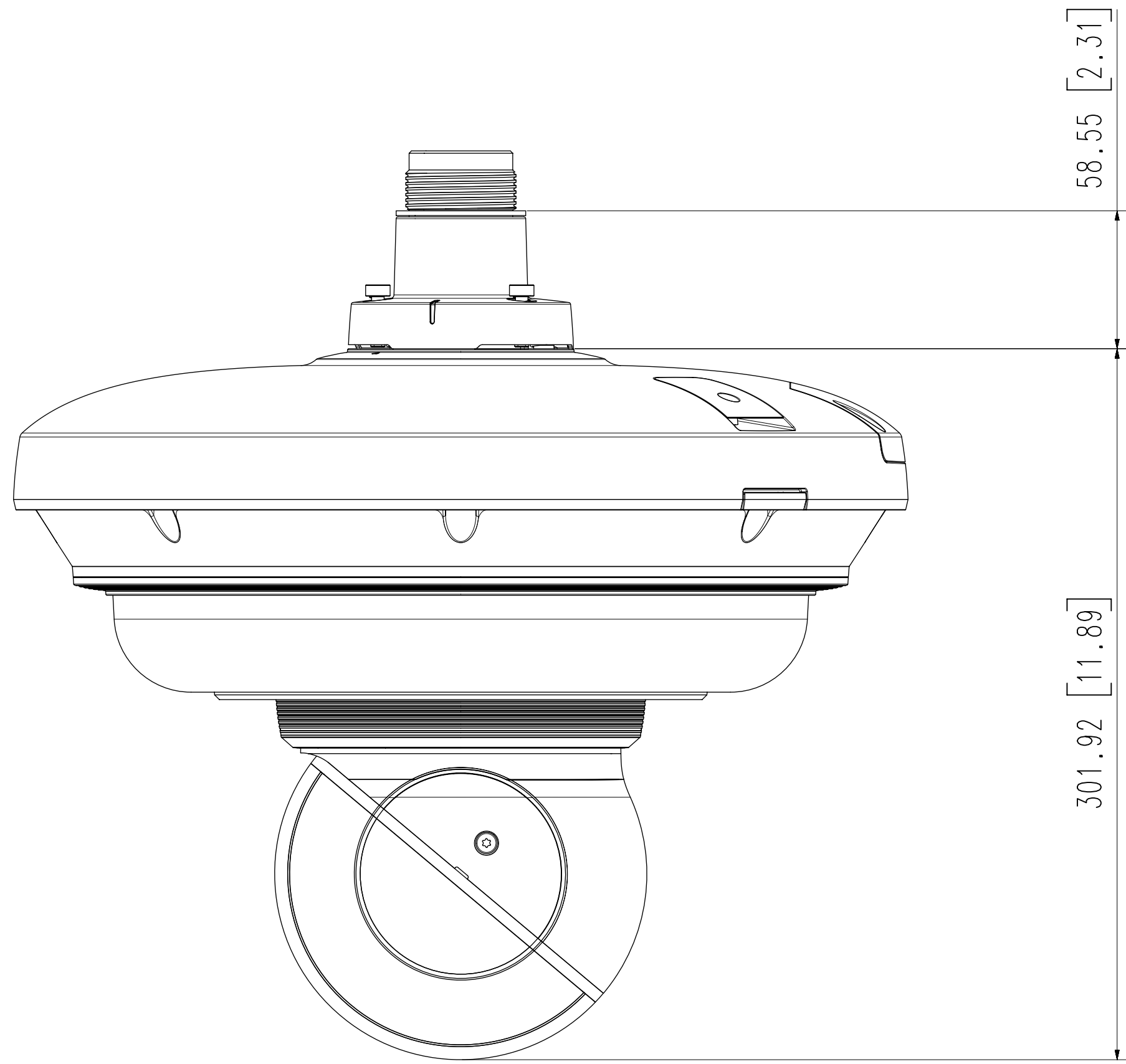
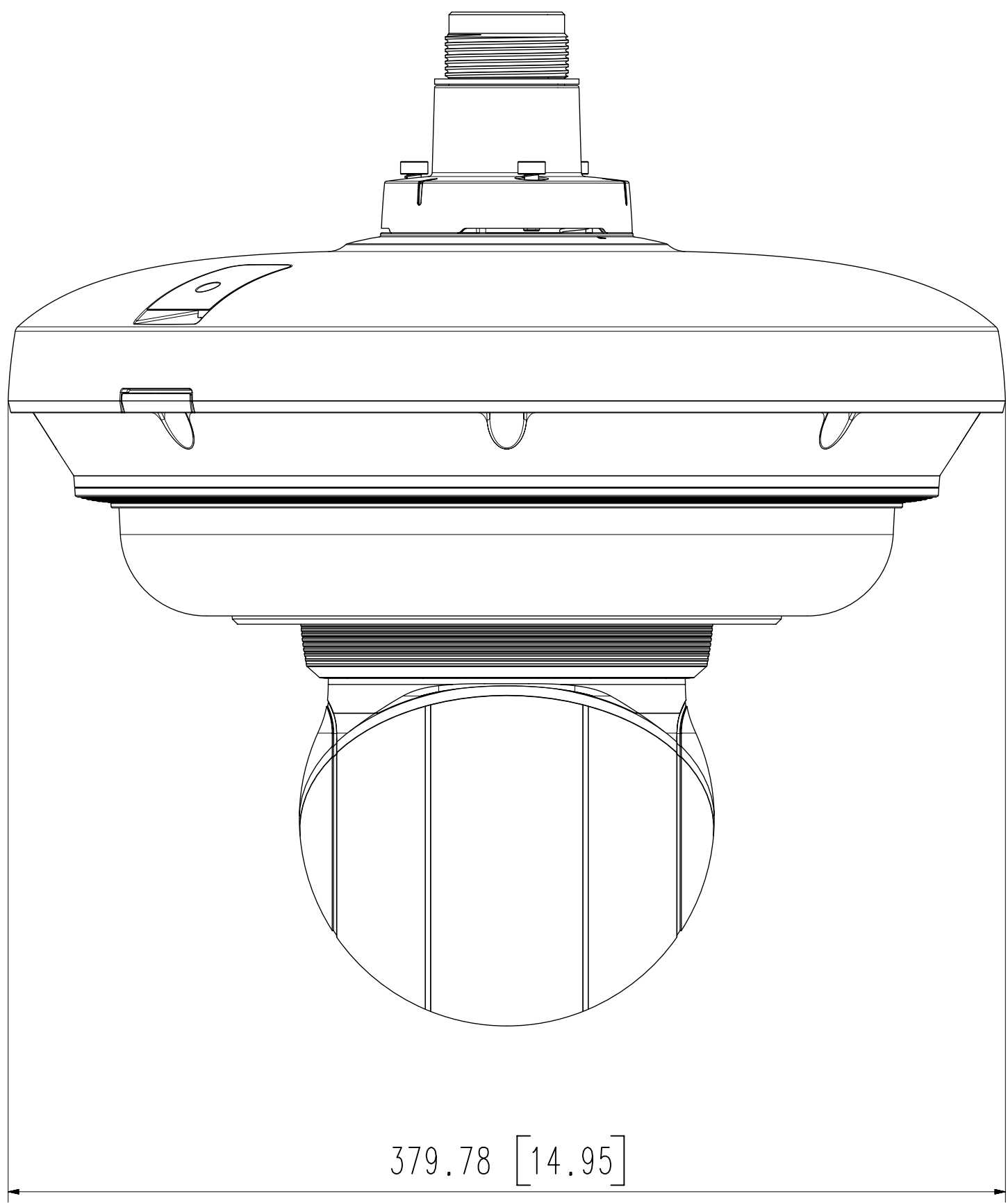
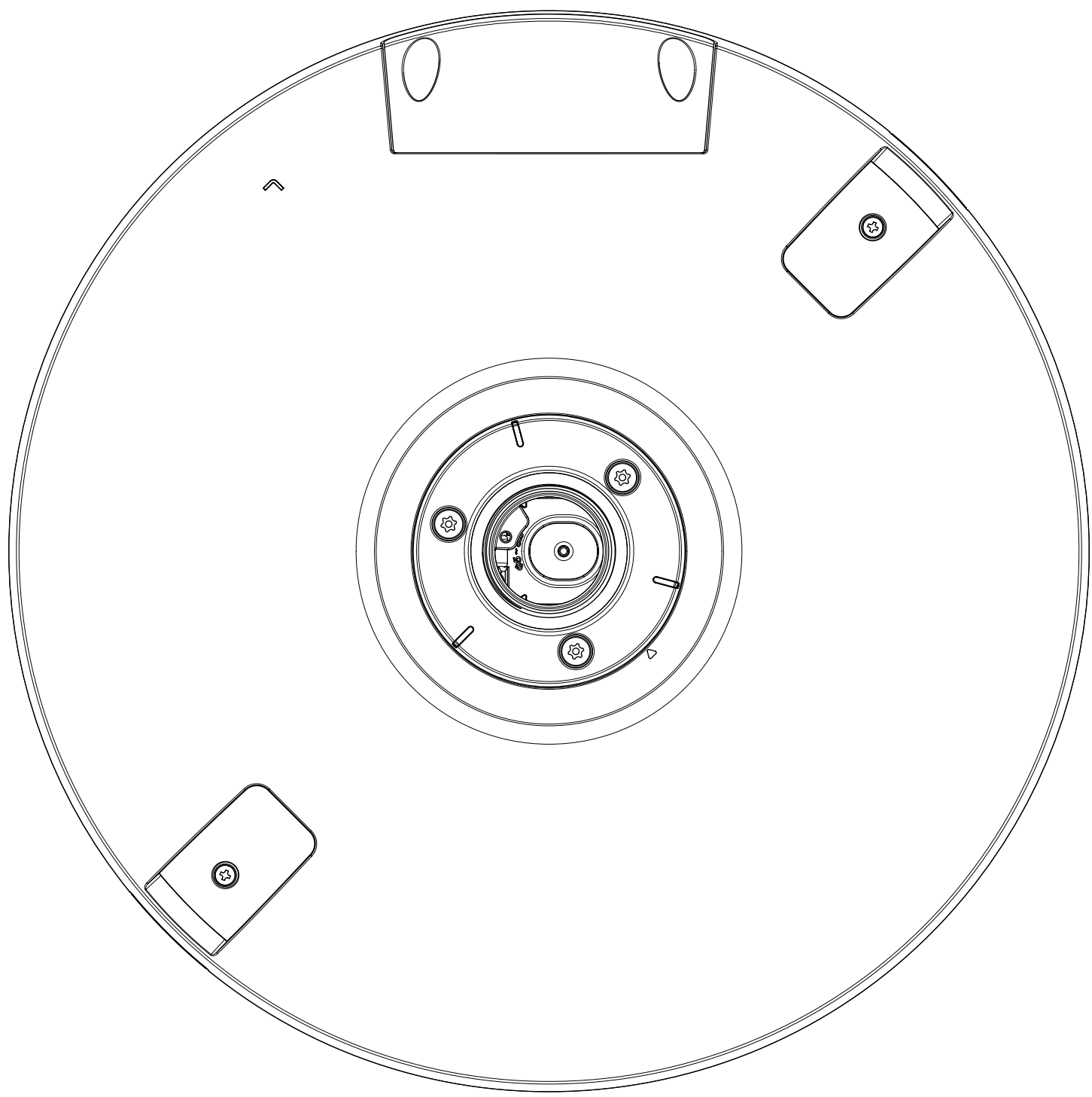
Gasket - Dome cover	Namyang Vina	O-VMQ-40-BK	Gasket Test was conducted under E158873-A6034	-	-	
Gasket- Between Top Enclosure and Bottom Enclosure	Namyang Vina	O-VMQ-40-GR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - Mirco Cover	Namyang Vina	O-VMQ-50-GR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - Power board	Namyang Vina	O-VMQ-60-BL	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - PoE cover	Namyang Vina	O-VMQ-50-TR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - SUB Camera cover	Y&K TECH CO., LTD	191125	Gasket Test was conducted under E158873-A6034	-	-	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 0.2 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Cable - Between Network board and Power board	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
Cable - Between Network board and Motion board	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
Cable - Between Power board and PoE board	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 300 V, 80 deg. C	AVLV2	UL	
Cable - Between Power board and SUB board	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 300 V, 80 deg. C	AVLV2	UL	

Cable - Between HSB board and SUB board	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 300 V, 80 deg. C	AVLV2	UL	
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	Min V-2	ECBT2	UL	
Connectors and Receptacles (Secondary circuits) -Alternate	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	UL	
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-0, 105 deg. C.	ZPXK2 or ZPMV2	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. 50 deg. C to Max.-40 deg. C if not specified.	PGJI2	UL	
LED (LED Right board, LED (LD1, LD2, LD3), Left board (LD1, LD2, LD3) (Total 6ea)	OSRAM	SFH4715AS	VF =Max. 4.7 V, IF=Max.3 A	-	-	
LED (CH1:LD1 to LD3) (CH2: LD1 to LD3) (CH3: LD1 to LD3) (CH4: LD1 to LD3) (Total 9ea)	OSRAM Opto Semiconductors. GmbH	SFH4713A	VF = Max. 2.3 V, IF= Max. 1.0 A	-	-	

Enclosures

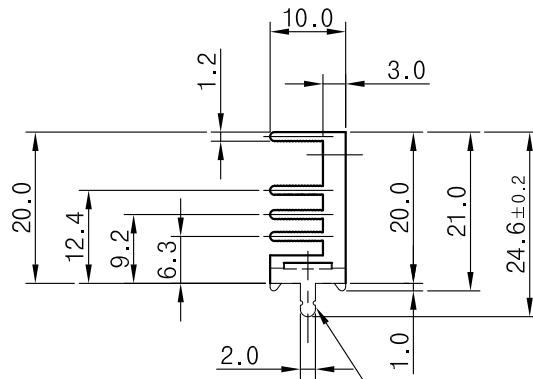
Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Internal View - 1
Photographs	03-04	Internal View - 2
Photographs	03-05	Internal View - 3
Photographs	03-06	Internal View - 4
Photographs	03-07	PTZ Camera View - 1
Photographs	03-08	PTZ Camera View - 2
Photographs	03-09	Sub Camera View - 1
Photographs	03-10	Sub Camera View - 2
Photographs	03-11	DC Fan - 1
Photographs	03-12	DC Fan - 2
Photographs	03-13	DC Fan - 3
Photographs	03-14	PTZ Camera Heater Board
Photographs	03-15	Sub Camera Heater Board
Photographs	03-16	PTZ Camera LED Board
Photographs	03-17	Sub Camera LED Board
Photographs	03-18	Drive Board
Photographs	03-19	Interface Board
Photographs	03-20	Main Board - Top
Photographs	03-21	Main Board - Bottom
Photographs	03-22	Network Board - Top
Photographs	03-23	Network Board - Bottom
Photographs	03-24	Power Board - Top
Photographs	03-25	Power Board - Bottom
Diagrams	04-01	Enclosure Diagram
Diagrams	04-02	Heatsink (HS1, HS2) Diagram
Manuals	06-01	Manual
Miscellaneous	07-01	Transformer (T1) Specification (CLOVER Hi-Tech co., LTD.)
Miscellaneous	07-02	Transformer (T1) Specification (COREPLUS CO LTD)
Miscellaneous	07-03	Transformer (T1) Specification (SHANDONG WUSONG ELECTRONIC TECHNOLOGY)
Miscellaneous	07-04	Bar Choke Coil (L1) Specification (BOSUNG ELECTROCIS CO.)
Miscellaneous	07-05	Bar Choke Coil (L1) Specification (Trigon Electronics (KunShan) Limited)
Miscellaneous	07-06	Line Filter (LF2) Specification (TNC CO., LTD)

Miscellaneous	07-07	Line Filter (LF2) Specification (HEFEI PHOENIX ELECTRONICS TECHNOLOGY CO LTD)
Miscellaneous	07-08	Line Filter (LF1) Specification
Miscellaneous	07-09	Label
Miscellaneous	07-10	Label (Risk Group)

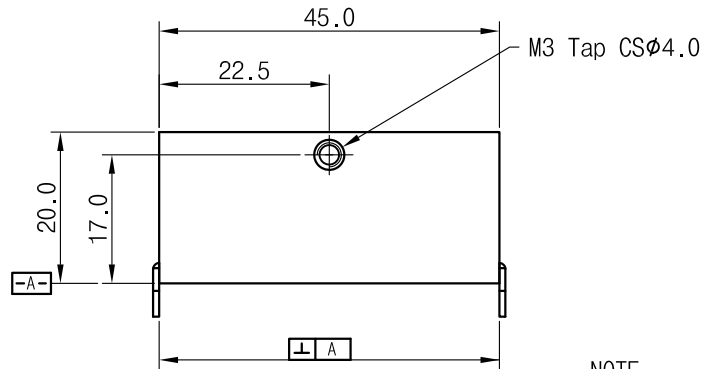


3	-	
2	-	
1	PNM-C34404RQPZ	'23.07.18
No.	MODEL NAME	DATE
Unit:mm[inch]		SCALE:1/1
Hanwha Techwin		

REVISION				
REV	SYM	DESCRIPTION	DATE	APPROVAL
A		Release	Mar.23.18	

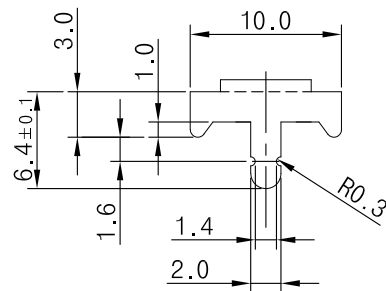


"A" t=0.8 TIN PLATE
REFER NOTE.6,Detail "A"



NOTE

- 1.MATERIAL : ALUMINUM A6063S -T5
- 2.Plating : WHITE ANODIZING
- 3.Non exist burr onthe cutting section.
- 4.Combination purt of demagnetization is within 0.05mm.
- 5.Remove grease completed, avoid cutting oil or other substance etc.
- 6.Non designated part "R" is within 0.2.
- 7.Press of solder pin is physical , securely fixed without wobble.
- 8.QQA-2049에서 지정된 환경관리물질 기준을 만족할것.
Comply with the threshold of substances which are specified in QQA-2049



Detail "A"(S=2/1)

POWERNET Technologies.				
DRAWING NAME		HEATSINK		
MODEL NO.		PN048HTCA-9320VQP		
SIZE	DRAWING NO.		REV.	
A4	2120550		A	
SCALE	N / S		SHEET 1 OF 1	

TOLERANCES UNLESS NOTED OTHER WISE	MATERIAL	
	FINISH	
	DRAWER	J H LEE Mar.23.18
	DESIGNER	S P JUNG Mar.23.18
X. : ±0.15 XX. : ±0.2 XXX. : ±0.3 ANGLE : ±2°	CHECK	J K KIM Mar.23.18
	APPROVAL	
UNIT mm		

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" and rated from PoE(55V), 1.17A.
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. 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.
23. The operating temperature of the product is -40°C to +50°C (-40°F ~ +122°F).

WARNING

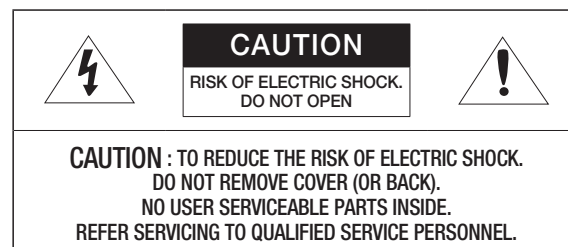
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

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.

Pan/Tilt/Zoom motors and slip ring are warrantied for one year under continuous operation. (PTZ Camera)

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.

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.

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 802.3bt 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.

- The product has a damp-proof component attached to it. Due to the nature of the product, dewes may be formed after energizing the product, but they will disappear in two to three hours.
- Since this product is equipped with a water-proof ventilation system, avoid installing it in a place that exhibits a sudden artificial change in temperature.
- 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.
- Do not adjust or move the lens directly with your hands. Doing so could damage the lens or degrade its performance.
- The life expectancy of driving the lens motor is 200 rotations.
- To move the location of your camera, privacy masking needs to be reset.
- If your product works normal, the degree of preset precision is 0.1°. In the case of reboot due to outage, firmware upgrade, etc., its tolerance might have to be adjusted after checking for any changes in Preset setup. (PTZ Camera)
- The heater turns on when the ambient temperature is below 12°C(53.6°F) and off when it is above 15°C(59°F). (PTZ Camera)
- When connecting the HPoE injector to the external Internet, use either one of network cable port (LAN) or fiber optic port (SFP) but not both.

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.

WARNING

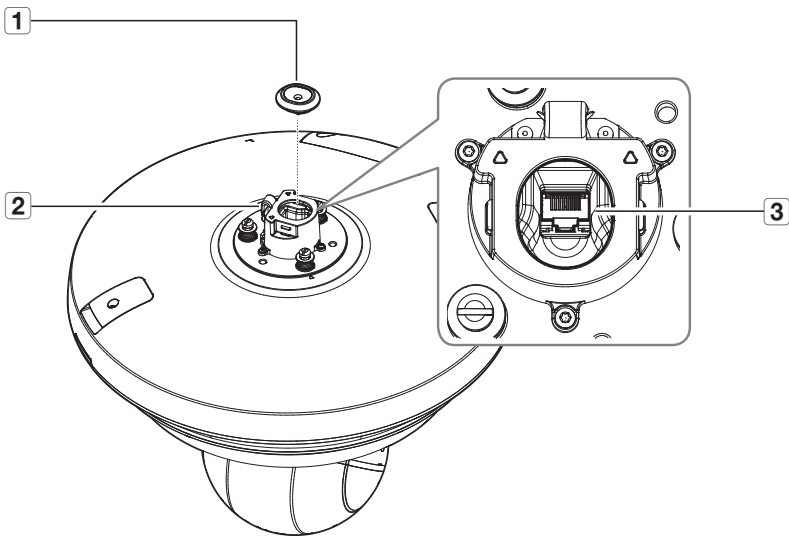
To Prevent damage which may caused by IR LED, don't stare at operating lamp.

For below models only.

PNM-C34404RQPZ

Risk Group 1 (Groupe de Risque 1)	
WARNING	IR emitted from this product Do not stare at operating lamp
MISE EN GARDE	IR émis par ce produit Ne pas regarder fixement la lampe
<i>Product tested against IEC62471</i>	

Mounting surface



Item	Description
1 Cable bushing	A waterproof rubber cap, which allows a network cable to go through it.
2 Safety wire hook	Hang this hook on the safety wire of the mount when installing this product to prevent it from falling.
3 Network port	A port that connects to the HPoE injector and network cable for power and network connection.

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.

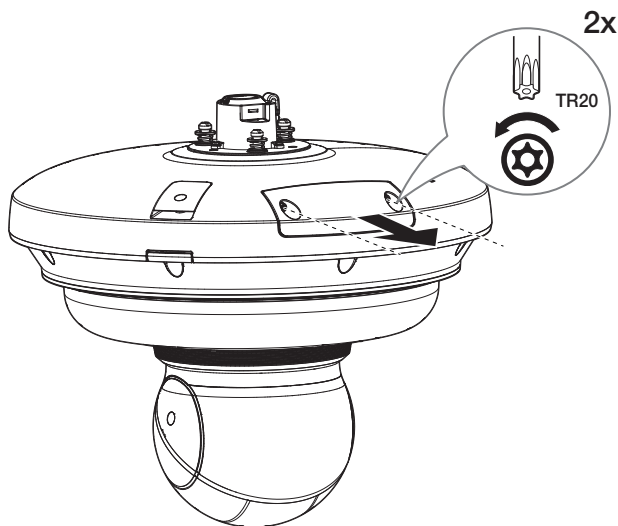
Precautions before installation

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

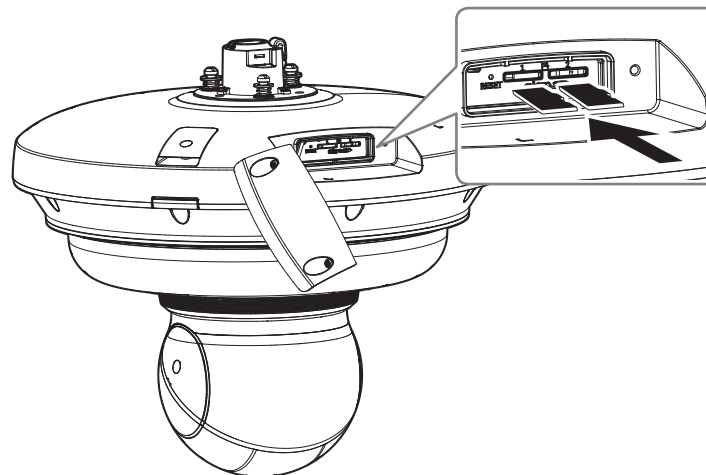
- Select an installation site that can hold at least 5 times the camera's weight.
- Stuck-in or peeled-off cables can cause damage to the product or a fire.
- For safety purposes, keep anyone else away from the installation site. And put aside personal belongings from the site, just in case.
- If the 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.

Inserting a Micro SD card

1. Using the supplied screw bit (Torx 20), unscrew the Micro SD card cover and remove it.

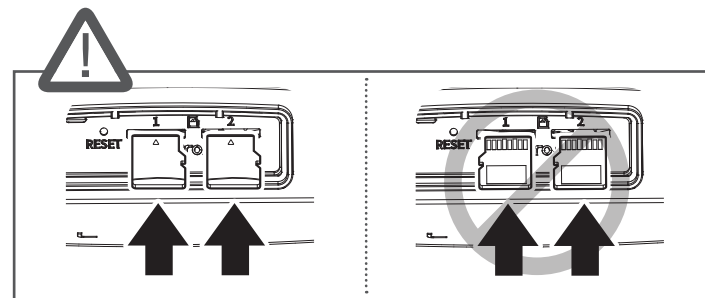


2. Insert a Micro SD card in the arrow direction shown in the figure.



3. Attach the Micro SD card cover with screws.

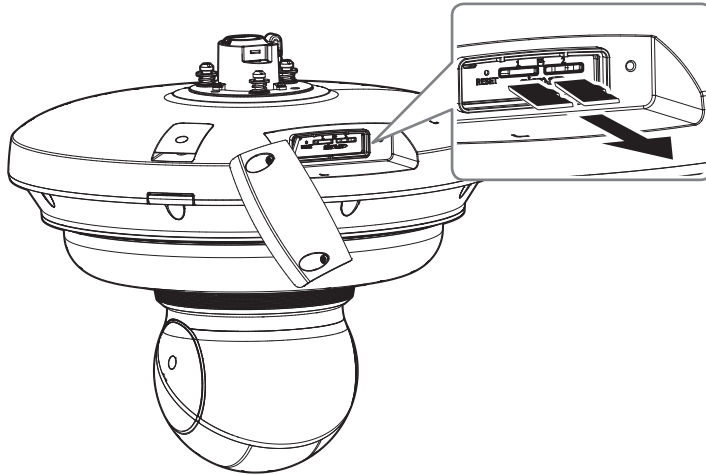
- ! Do not forcefully insert it in the reverse direction. It might damage your Micro SD card and your product.



- Tighten the screws when assembling the Micro SD card cover to prevent moisture penetration.
- Disconnect the power cable from the camera before inserting the Micro SD card.
- 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.



Preparing & Installing Camera Mount

For installation guidelines for mounts, refer to the installation manual that is enclosed with the mount.



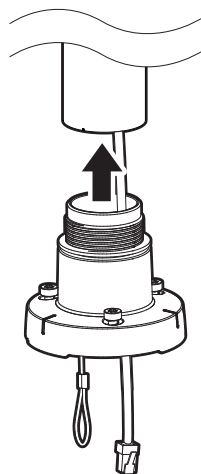
- See "Optional Accessories for Installation" for the appearance of each mount (unbundled), (page 9)



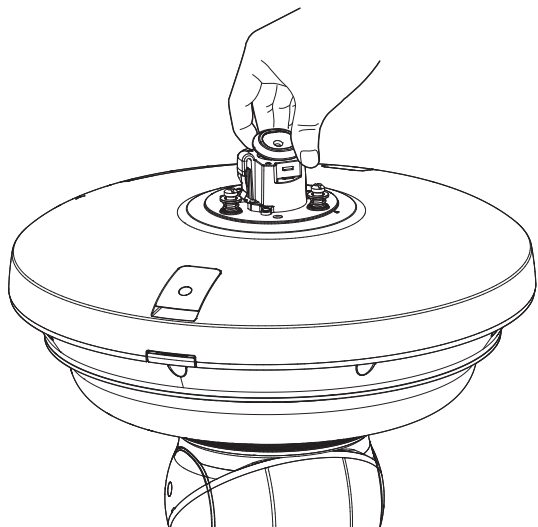
- Before removing the Micro SD card, in <Setup (⚙️)>-<Event>-<Storage>, set the device to <Off> and press the [Apply] button and turn the camera off.
- If you turn off the camera or remove the Micro SD card that contains data from the product, the data may be lost or damaged.

Installation

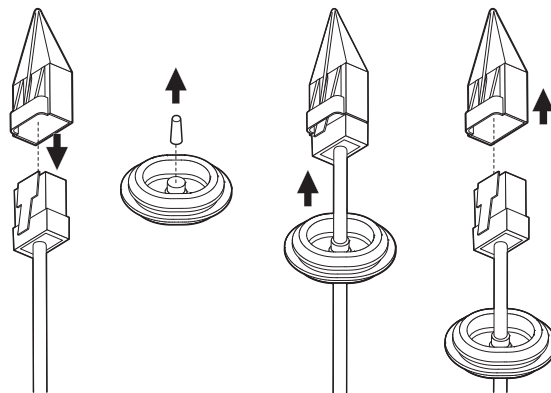
1. Connect the hanging mount adapter to the mount to be installed.



2. Remove the cable bushing from the top cover.

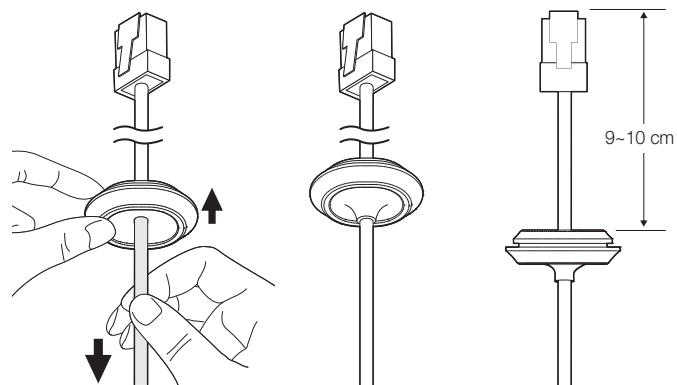


3. Pull off the extruded part of the removed cable bushing.
4. Use the cap installer to route the network cable through the cable bushing.

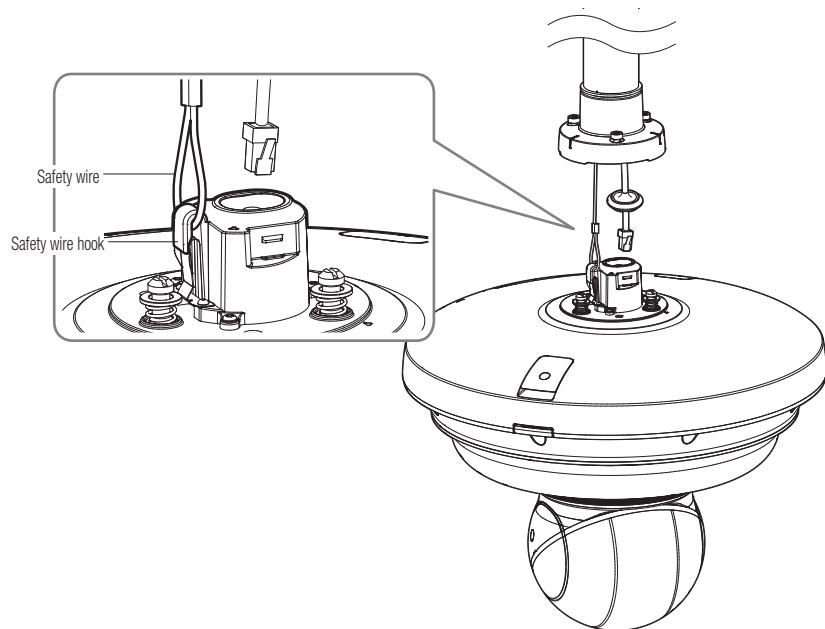


 ■ If the cable bushing is torn, use the extra cable bushing provided.

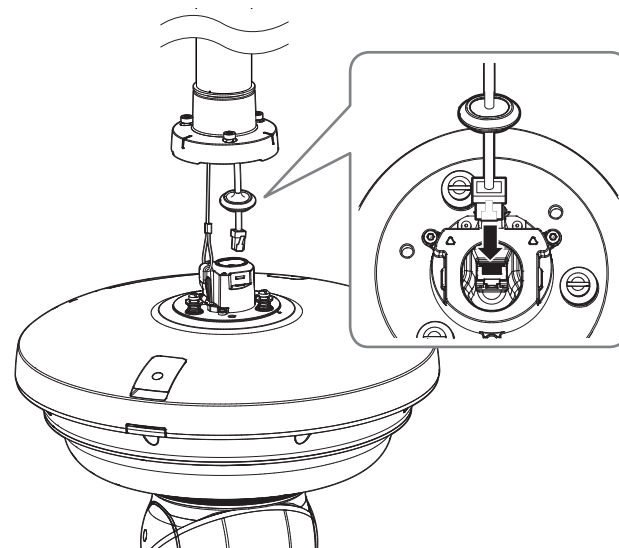
5. For waterproof protection, pull down the cable below the cable bushing as shown in the figure below.



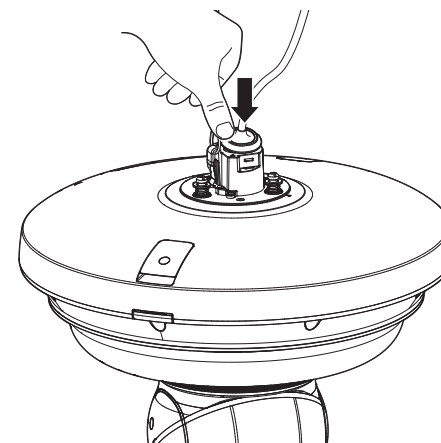
6. Hang the safety cable of the hanging mount adapter on the safety cable hook of the top cover.



7. Connect the network cable to the network port.



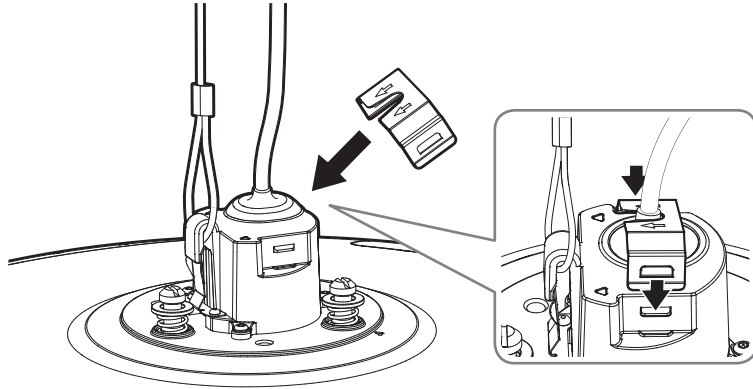
8. Plug the cable bushing of the network cable in the hole.
When plugging it in, press the whole bushing area evenly so that it is properly plugged in.



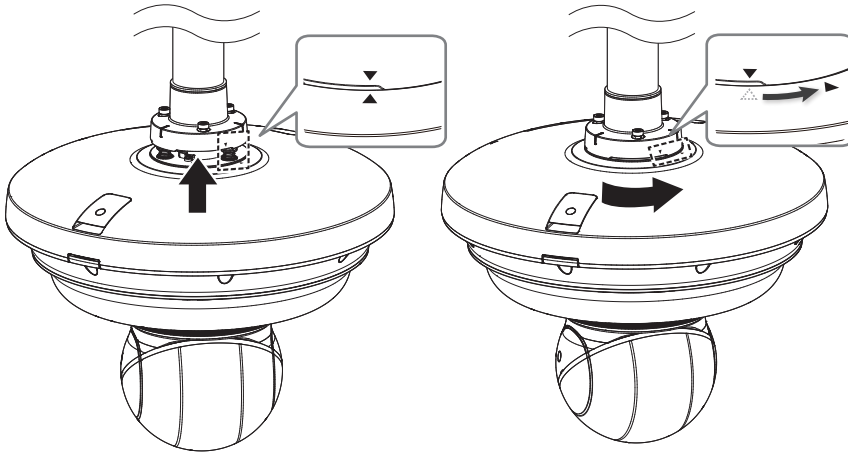
! ■ The length and width of the cable bushing are different. Check the shape and plug it in the right direction.

9. Install the bushing clip.

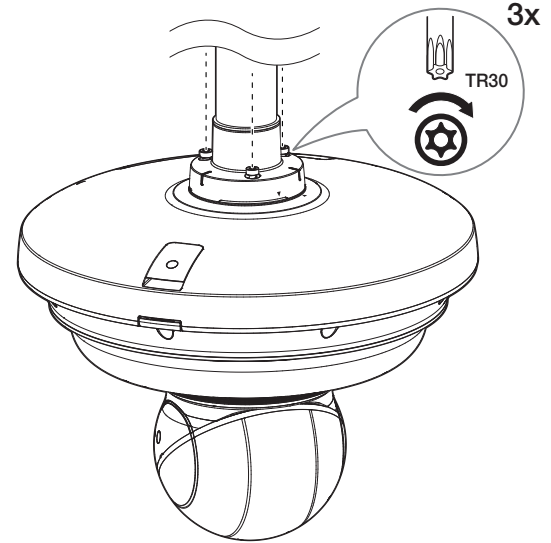
Let the arrow mark on the clip point in the direction of the safety wire hook, and click each side into place one at a time.



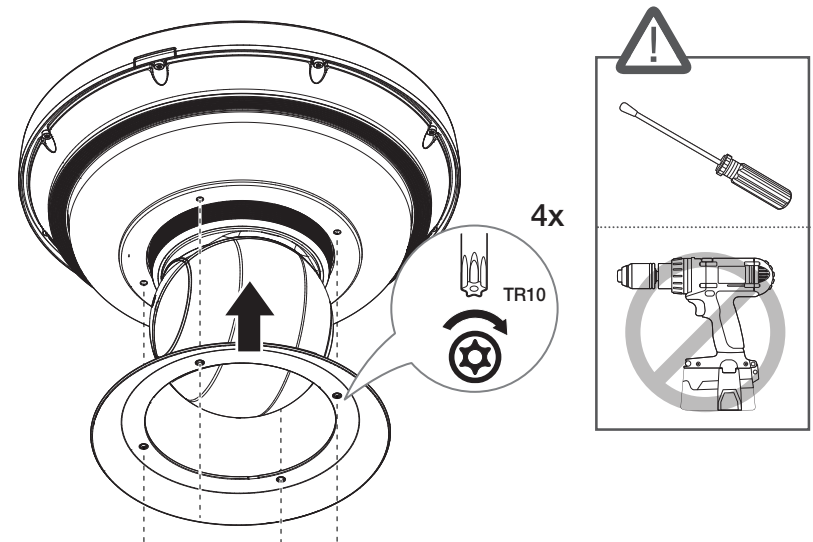
10. After aligning the hanging mount adapter with the camera's assembly direction, push the top cover up and turn it all the way counterclockwise.



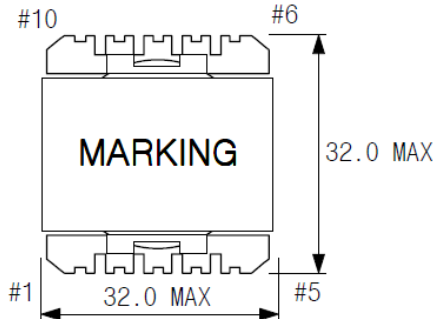
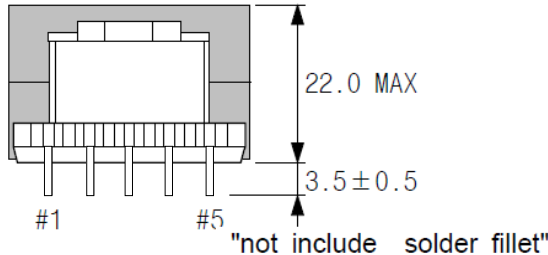
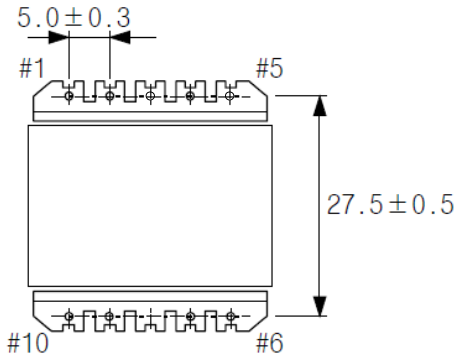
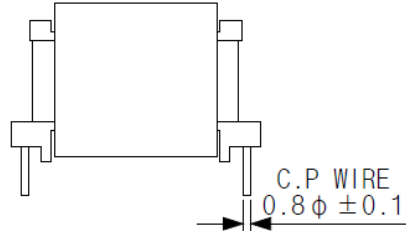
11. Using the supplied screw bit (Torx 30), tighten the 3 fixing screws on the top cover firmly.



12. Using the supplied torx screwdriver (Torx 10), assemble the IR LED shield.



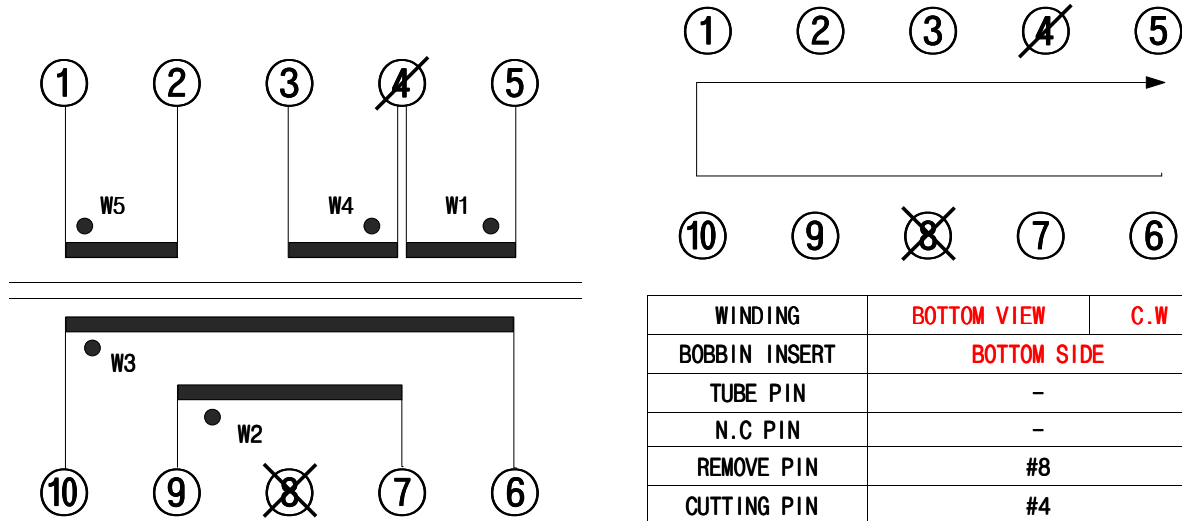
CUSTOMER : POWERNET TECHNOLOGIES.

SPECIFICATIONS		DATE	2017.03.13																							
PART NAME	TRANS-POWER S/W	PART NO	1400651																							
6. DIMENSION (UNIT:mm)  ◆TOP VIEW◆  ◆FRONT VIEW◆  ◆BOTTOM VIEW◆		*MARKING(BLACK)* 1400651 -- PART NO. SC-05B SC-AABBCCDE-- LOT NO. MAKER(TRADENAME) INSULATION SYSTEM DESIGN NO(CLASS-B) LOT NO <table><tr><th>YEAR(AA)</th><th>MONTH(BB)</th><th>DAY(CC)</th></tr><tr><td>2016Y→16</td><td>JAN→01</td><td>1st DAY→01</td></tr><tr><td>2017Y→17</td><td>FEB→02</td><td>2nd DAY→02</td></tr><tr><td>2018Y→18</td><td>DEC→12</td><td>31thDAY→31</td></tr></table><table><tr><th>PRODUCT CODE(D)</th><th>MANUFACTURER OF CORE(E)</th></tr><tr><td>A:KOREA PRODUCT</td><td>K:DONGYANGGUANG</td></tr><tr><td>C:CHINA(WENDENG)</td><td>N:JISHUN</td></tr><tr><td>D:CHINA(DONGGUAN)</td><td>S:SAMHWA</td></tr><tr><td>E:CHINA(ZAOZHUANG)</td><td></td></tr></table>  ◆SIDE VIEW◆ * REMOVE PIN : #8 * CUTTING PIN : #4 * GAP CORE : TOP * CENTER BOND : SW-860HF			YEAR(AA)	MONTH(BB)	DAY(CC)	2016Y→16	JAN→01	1st DAY→01	2017Y→17	FEB→02	2nd DAY→02	2018Y→18	DEC→12	31thDAY→31	PRODUCT CODE(D)	MANUFACTURER OF CORE(E)	A:KOREA PRODUCT	K:DONGYANGGUANG	C:CHINA(WENDENG)	N:JISHUN	D:CHINA(DONGGUAN)	S:SAMHWA	E:CHINA(ZAOZHUANG)	
		YEAR(AA)	MONTH(BB)	DAY(CC)																						
		2016Y→16	JAN→01	1st DAY→01																						
		2017Y→17	FEB→02	2nd DAY→02																						
		2018Y→18	DEC→12	31thDAY→31																						
PRODUCT CODE(D)	MANUFACTURER OF CORE(E)																									
A:KOREA PRODUCT	K:DONGYANGGUANG																									
C:CHINA(WENDENG)	N:JISHUN																									
D:CHINA(DONGGUAN)	S:SAMHWA																									
E:CHINA(ZAOZHUANG)																										
CLOVER Hi-Tech CO., LTD.		DESIGN	CHECK	APPROVAL																						
		Y.H CHA	K.T KIM	D.K PARK																						
				PAGE																						
				2/19																						

CUSTOMER : POWERNET TECHNOLOGIES.

SPECIFICATIONS		DATE	2017.03.13
PART NAME	TRANS-POWER S/W	PART NO	1400651

7. SCHEMATIC DIAGRAM



8. WINDING SPECIFICATION

NO	NAME	TERMINAL NO.		WINDING		
		START	FINISH	WIRE	TURNS	WINDING METHOD
1	W1	5	4	1UEW 0.50 ϕ $\times$ 2	7	SOLENOID
2	W2	9	7	1UEW 0.50 ϕ $\times$ 2	7	SOLENOID
3	W3	10	6	1UEW 0.50 ϕ $\times$ 2	7	SOLENOID
4	W4	4	3	1UEW 0.50 ϕ $\times$ 2	7	SOLENOID
5	W5	1	2	1UEW 0.40 ϕ	12	SOLENOID
WIRE SPECIFICATION				CONDUCTOR		
				WIRE	DIAMETER[mm]	TOLERANCE OF DIAMETER[mm]
				1UEW	0.40	± 0.004
				1UEW	0.50	± 0.005

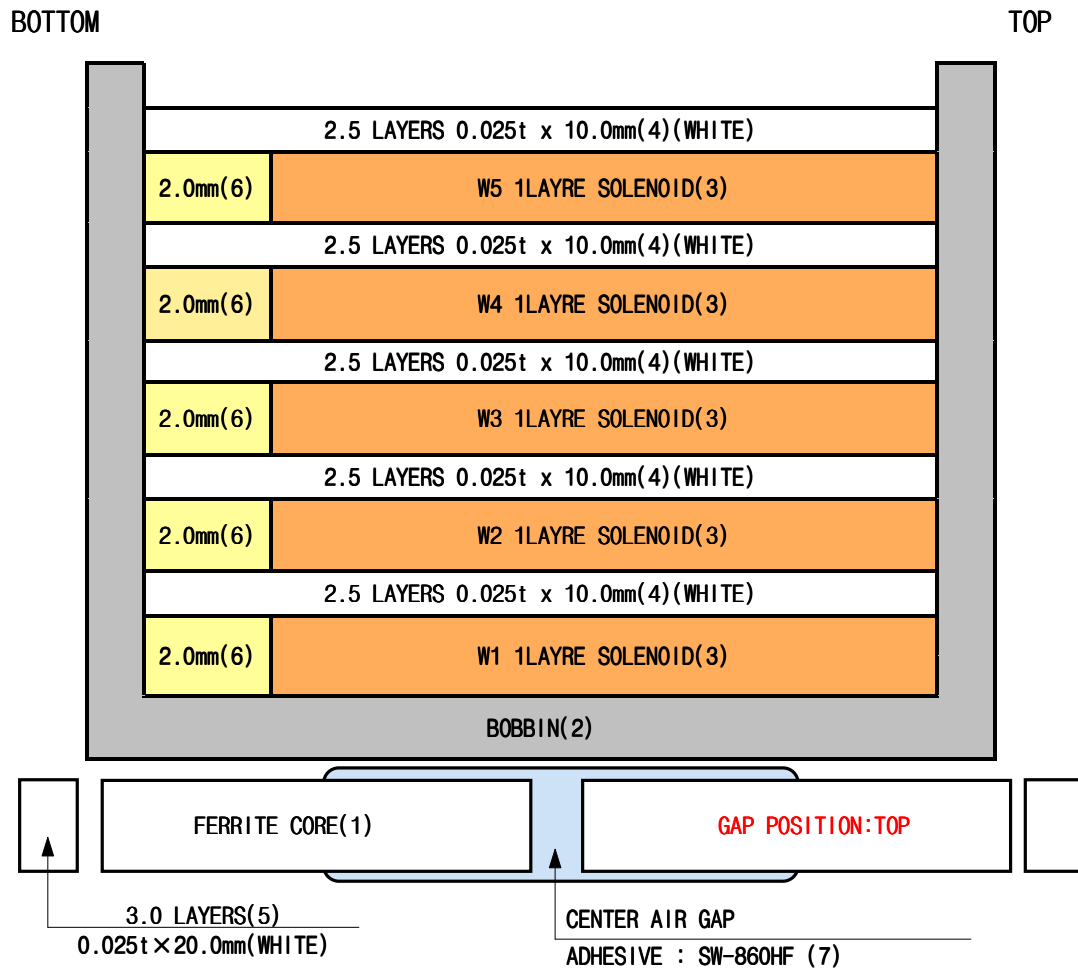
* REGARDING ABOVE TABLE STANDARD, THICKNESS OF WIRE MUST BE OVER SPECIFICATION.

CLOVER Hi-Tech CO., LTD.	DESIGN	CHECK	APPROVAL	PAGE
	Y.H CHA	K.T KIM	D.K PARK	3/19

CUSTOMER : POWERNET TECHNOLOGIES.

SPECIFICATIONS		DATE	2017.03.13
PART NAME	TRANS-POWER S/W	PART NO	1400651

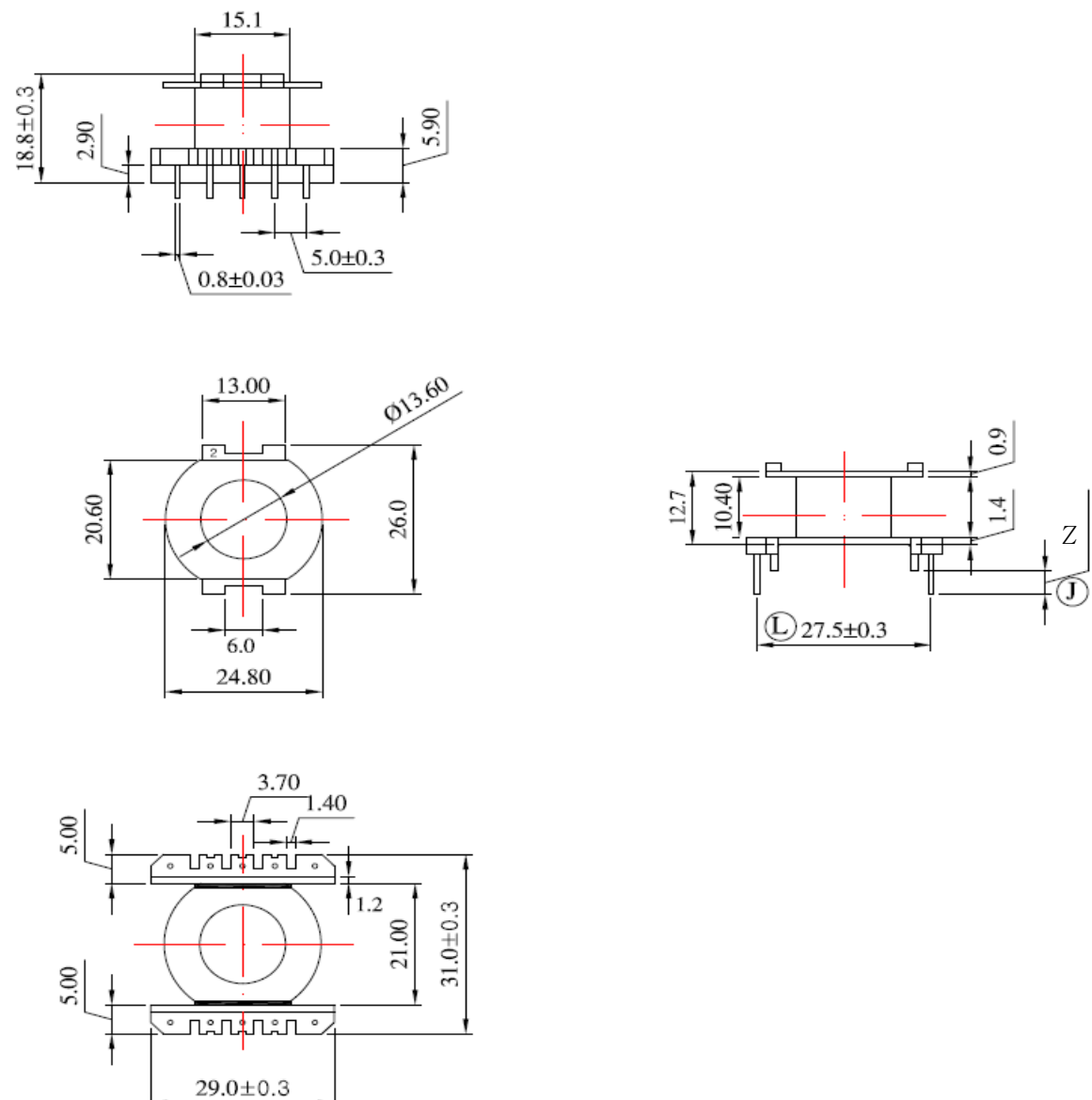
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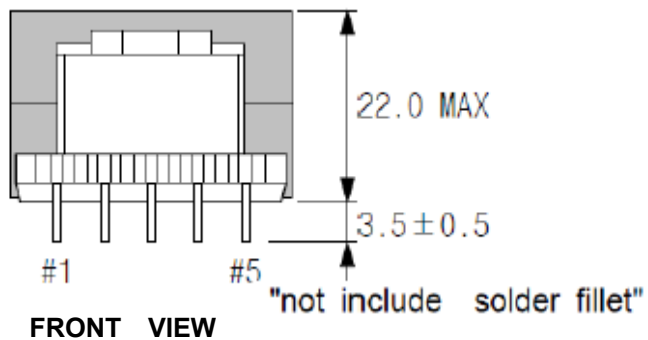
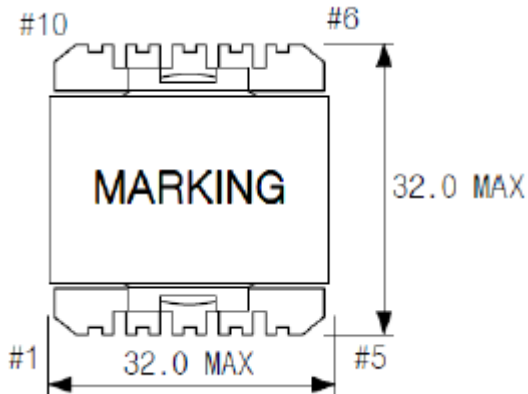
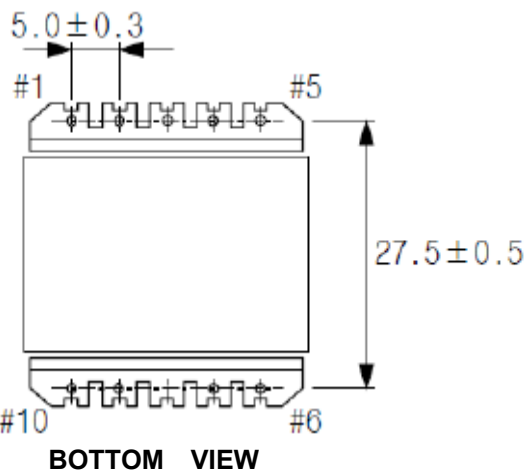
- WINDING :
- PS TAPE :
- BARRIER :

CLOVER Hi-Tech CO., LTD.	DESIGN	CHECK	APPROVAL	PAGE
	Y.H CHA	K.T KIM	D.K PARK	6/19

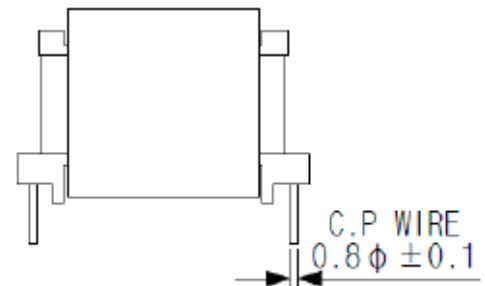
CUSTOMER : POWERNET TECHNOLOGIES.

SPECIFICATIONS		DATE	2017.03.13	
PART NAME	TRANS-POWER S/W	PART NO	1400651	
※ BOBBIN DIMENSION ※				
				
CLOVER Hi-Tech CO., LTD.		DESIGN	CHECK	APPROVAL
		Y.H CHA	K.T KIM	D.K PARK
		PAGE		18/19

SPECIFICATIONS		SHEET NO.	2 OF 21
		DATE	2017. 03. 13.
PART NAME	S/W TRANS	MODEL NAME	PN042HTCA-9080VQ
PART NO.	1400651	TYPE	EER3019

6. DIMENSIONS (UNIT: m/m)**TOP VIEW****FRONT VIEW****BOTTOM VIEW****MARKING**

PART NO.	1400651
TRADE NAME	CP(COREPLUS)
CHINA FACTORY	LY(LIAOYANG)
CP-130	COREPLUS 'CLASS B' SYSTEM
Year	2016 → 16 2017 → 17...
Week	First Week → 1 Second Week → 2...
Product Area	A: KOREA C: CHINA I :INDONESIA
MANUFACTURE R OF CORE	S: SMAWHA T: TDG N: NANTONG
	1400651 CP LY CP-130 1612CT

**SIDE VIEW**

CUSTOMER
CHECK

CORE Plus

DESIGN

CHECK

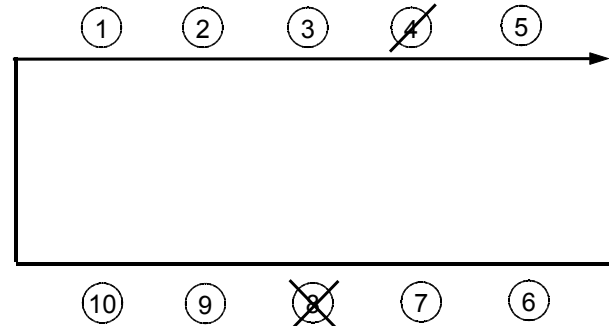
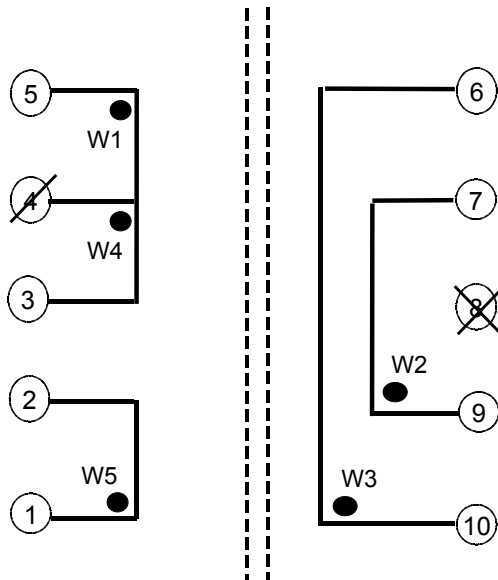
CONFIRM

APPROVAL



SPECIFICATIONS		SHEET NO.	3 OF 21
		DATE	2017. 03. 13.
PART NAME	S/W TRANS	MODEL NAME	PN042HTCA-9080VQ
PART NO.	1400651	TYPE	EER3019

7. SCHEMATIC DIAGRAM



WINDING	BOTTOM VIEW	C.W
BOBBIN INSERT	BOTTOM	
REMOVE PIN	#8	
N.C PIN	NONE	
CUT PIN	#4	
TEFLON TUBE	NONE	

8. WINDING SPECIFICATION

WINDING ORDER	TERMINAL NO		WIRE	TURNS	WINDING METHOD	REMARKS
	S	F				
W1	5	4	1UEW 0.50Ø * 2P	7	SOLENOID	1 LAYERS
W2	9	7	1UEW 0.50Ø * 2P	7	SOLENOID	1 LAYERS
W3	10	6	1UEW 0.50Ø * 2P	7	SOLENOID	1 LAYERS
W4	4	3	1UEW 0.50Ø * 2P	7	SOLENOID	1 LAYERS
W5	1	2	1UEW 0.40Ø	12	SOLENOID	1 LAYERS

* REGARDING ABOVE TABLE STANDARD, THICKNESS OF WIRE MUST BE OVER SPECIFICATION RANGE.

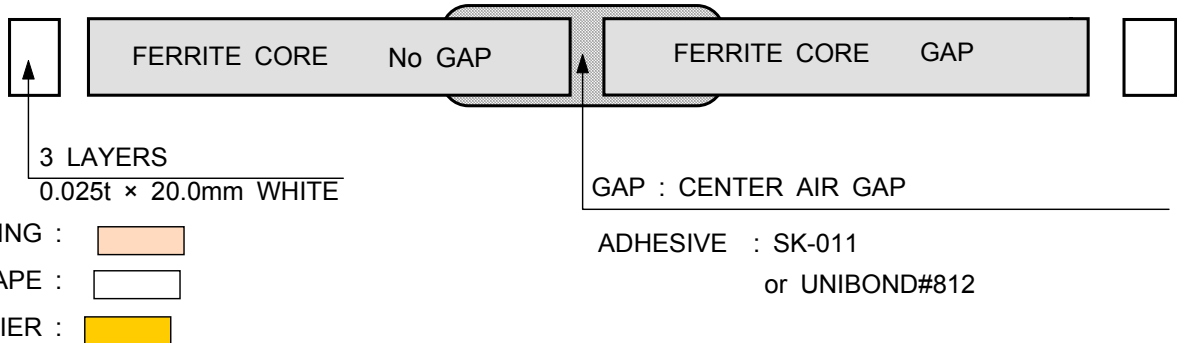
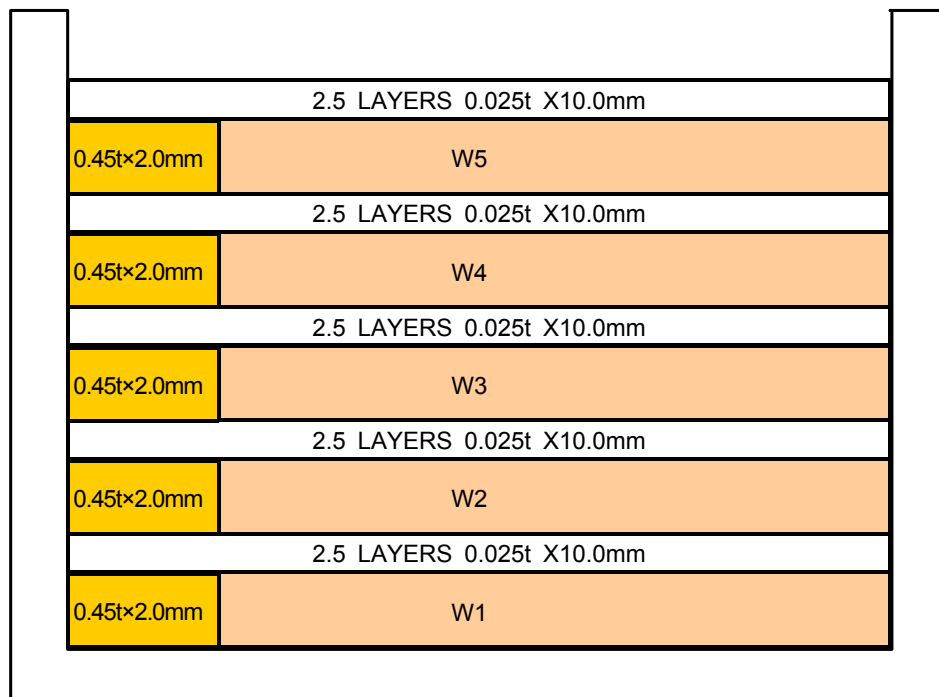
CUSTOMER CHECK		DESIGN	CHECK	CONFIRM	APPROVAL
					

SPECIFICATIONS		SHEET NO.	6 OF 21
		DATE	2017. 03. 13.
PART NAME	S/W TRANS	MODEL NAME	PN042HTCA-9080VQ
PART NO.	1400651	TYPE	EER3019

11. INTERNAL CONSTRUCTION

PIN

TOP

CUSTOMER
CHECK

CORE Plus+

DESIGN

CHECK

CONFIRM

APPROVAL

PARK.J.S

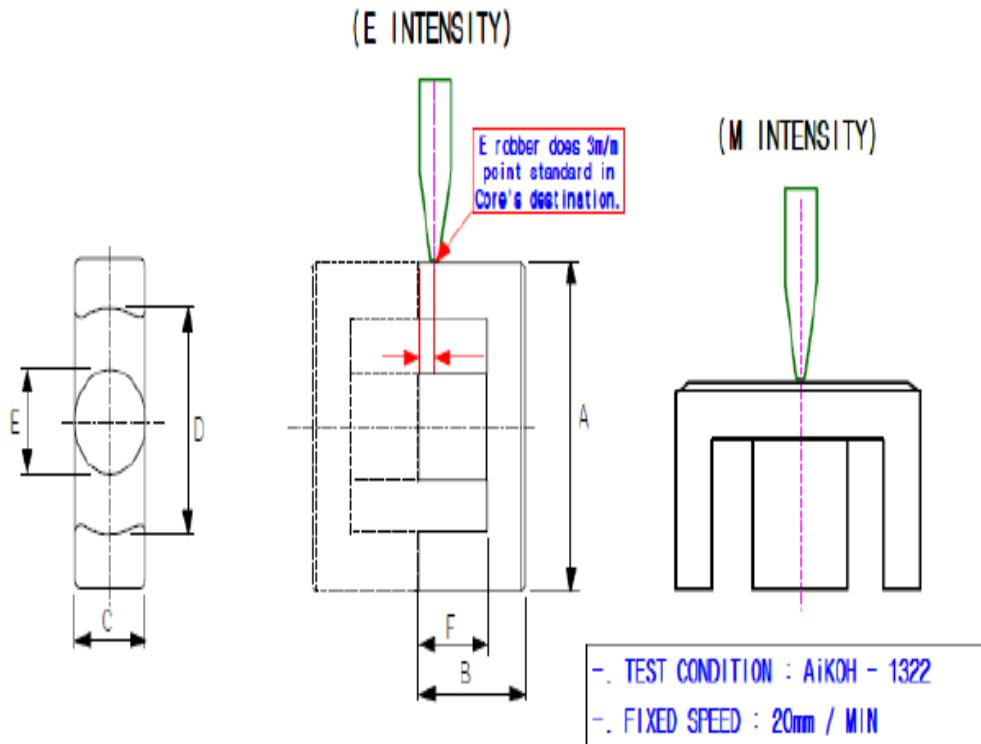
YANG.S.J

JANG.C.H

LEE.Y.G

SPECIFICATIONS		SHEET NO.	20 OF 21
		DATE	2017. 03. 13.
PART NAME	S/W TRANS	MODEL NAME	PN042HTCA-9080VQ
PART NO.	1400651	TYPE	EER3019

21. CORE DIMENSION



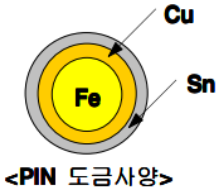
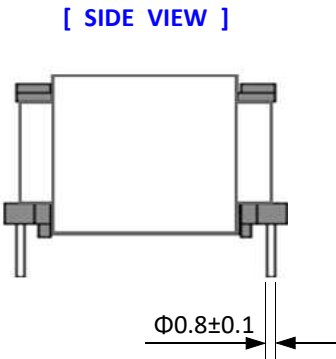
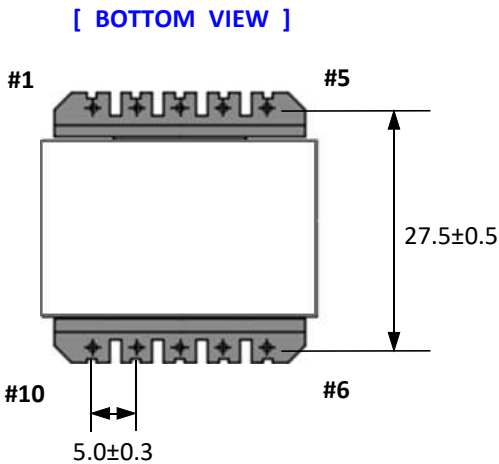
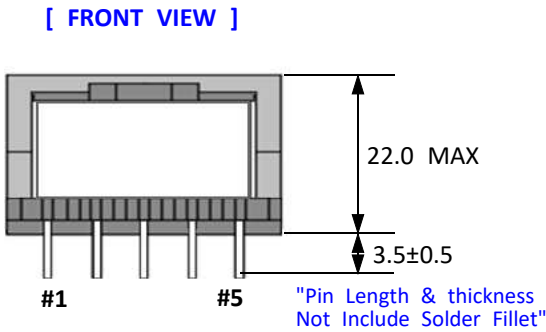
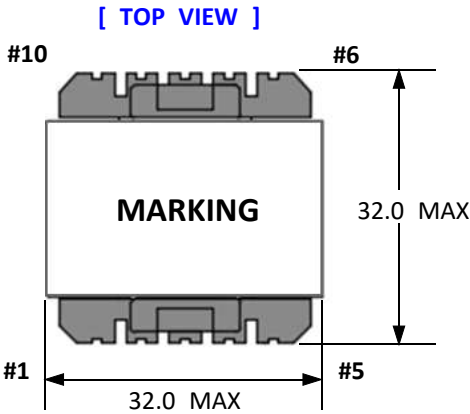
TYPE	DIMENSION(mm)						EFFECTIVE PARAMETERS			INTENSITY (Kgf MIN)		REMARKS
	A	B	C	D	E	F	Le(mm)	Ae(mm ²)	Ve(mm ²)	M	E	
EER3124N	30.00 ±0.5	9.40 ±0.15	20.30 ±0.30	25.70 ±0.40	13.30 ±0.20	6.60 ±0.20	47.7	132.0	6298	9.5	16.5	SAMWHA
EER3124	30.00 ±0.5	9.40 ±0.15	20.30 ±0.30	25.70 ±0.40	13.30 ±0.20	6.60 ±0.20	47.7	132.0	6298	9.5	16.5	TDG
EER3124	30.00 ±0.5	9.40 ±0.15	20.30 ±0.30	25.70 ±0.40	13.30 ±0.20	6.60 ±0.20	47.7	132.0	6298	9.5	16.5	NANTONG

CUSTOMER CHECK		DESIGN	CHECK	CONFIRM	APPROVAL
					

SPECIFICATIONS

PART NAME	TRANSFORMER	MODEL NO.	PN042HTCA-9080VQ
CODE NO.	1400651	DESCRIPTION	EER3019

6. APPEARANCE DIMENSIONS [UNIT:mm]



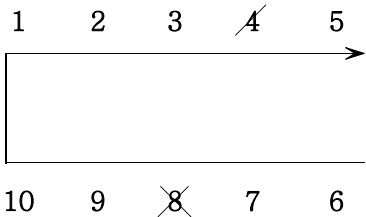
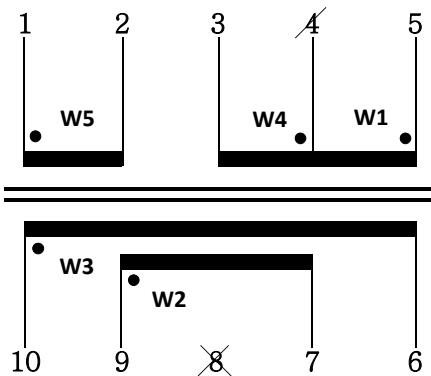
< MARKING >			
1400651 → PART NO. WS-U130501 → CLASS-B INSULATION SYSTEM WS AABBCD → LOT NO. → COMPANY NAME			
PRODUCT CODE / MAKER (COMPANY NAME)			
WS : MADE IN WUSONG ELECTRONICS			
LOT NO			
YEAR(AA)	2022Y → 22 2023Y → 23	WEEK(BB)	1'st WEEK → 01 2'nd WEEK → 02
PRODUCT CODE (C)	A	KOREA	
	C	CHINA	
MANUFACTURER OF CORE (D)			
Y	YAORUN	G	GUANYOUDA
Z	ZHONGXING		
CLASS "B" SYSTEM		WS-U130501	

SPEC NO.	WS-S2022092201	DATE	2022. 09. 22	SHEET NO.	5
 山东晤松电子 SHANDONG WUSONG ELECTRONIC TECHNOLOGY			DRAWN 	CHECKED 	APPROVED 

SPECIFICATIONS

PART NAME	TRANSFORMER	MODEL NO.	PN042HTCA-9080VQ
CODE NO.	1400651	DESCRIPTION	EER3019

7. SCHEMATIC DIAGRAM



WINDING	C.W
BOBBIN INSERT	BOTTOM INSERT
REMOVE PIN	#8
CUTTING PIN	#4
N.C PIN	-
TUBE PIN	-

8. WINDING SPECIFICATION

NO	BARRIER(mm)		TERMINAL		WINDING			INSULATION (mm)		
	PIN	TOP	S	F	WIRE	TURNS	WINDING METHOD	MATERIAL	T/W	Ts
W1	2.0	-	5	4	1UEW Ø0.50x2	7	C.W SOLENOID	P.E TAPE	0.025/10.0, WHITE	2.5
W2	2.0	-	9	7	1UEW Ø0.50x2	7	C.W SOLENOID	P.E TAPE	0.025/10.0, WHITE	2.5
W3	2.0	-	10	6	1UEW Ø0.50x2	7	C.W SOLENOID	P.E TAPE	0.025/10.0, WHITE	2.5
W4	2.0	-	4	3	1UEW Ø0.50x2	7	C.W SOLENOID	P.E TAPE	0.025/10.0, WHITE	2.5
W5	2.0	-	1	2	1UEW Ø0.40	12	C.W SOLENOID	P.E TAPE	0.025/10.0, WHITE	2.5
CORE FIXING TAPE								P.E TAPE	0.025/20.0, WHITE	3

SPEC NO.	WS-S2022092201	DATE	2022. 09. 22	SHEET NO.	6
 山东晤松电子 SHANDONG WUSONG ELECTRONIC TECHNOLOGY			DRAWN	CHECKED	APPROVED
					

SPECIFICATIONS

PART NAME	TRANSFORMER	MODEL NO.	PN042HTCA-9080VQ
CODE NO.	1400651	DESCRIPTION	EER3019

*** METHOD OF WINDING WORK**

구분	사진	작업 설명
W1		- TOP BARRIER : X - BOTTOM BARRIER : 0.45Tx2.0W 1T - TERMINAL : 5 → 4 - TUBE : X - WINDING METHOD : 1LAYER SOLENOID (7Ts) - WINDING LAYER : 1 LAYER
W2		- TOP BARRIER : X - BOTTOM BARRIER : 0.45Tx2.0W 1T - TERMINAL : 9 → 7 - TUBE : X - WINDING METHOD : 1LAYER SOLENOID (7Ts) - WINDING LAYER : 1 LAYER
W3		- TOP BARRIER : X - BOTTOM BARRIER : 0.45Tx2.0W 1T - TERMINAL : 10 → 6 - TUBE : X - WINDING METHOD : 1LAYER SOLENOID (7Ts) - WINDING LAYER : 1 LAYER
W4		- TOP BARRIER : X - BOTTOM BARRIER : 0.45Tx2.0W 1T - TERMINAL : 4 → 3 - TUBE : X - WINDING METHOD : 1LAYER SOLENOID (7Ts) - WINDING LAYER : 1 LAYER
W5		- TOP BARRIER : X - BOTTOM BARRIER : 0.45Tx2.0W 1T - TERMINAL : 1 → 2 - TUBE : X - WINDING METHOD : 1LAYER SOLENOID (12Ts) - WINDING LAYER : 1 LAYER

SPEC NO.	WS-S2022092201	DATE	2022. 09. 22	SHEET NO.	7
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 山东晤松电子 SHANDONG WUSONG ELECTRONIC TECHNOLOGY	DRAWN	CHECKED	APPROVED
			

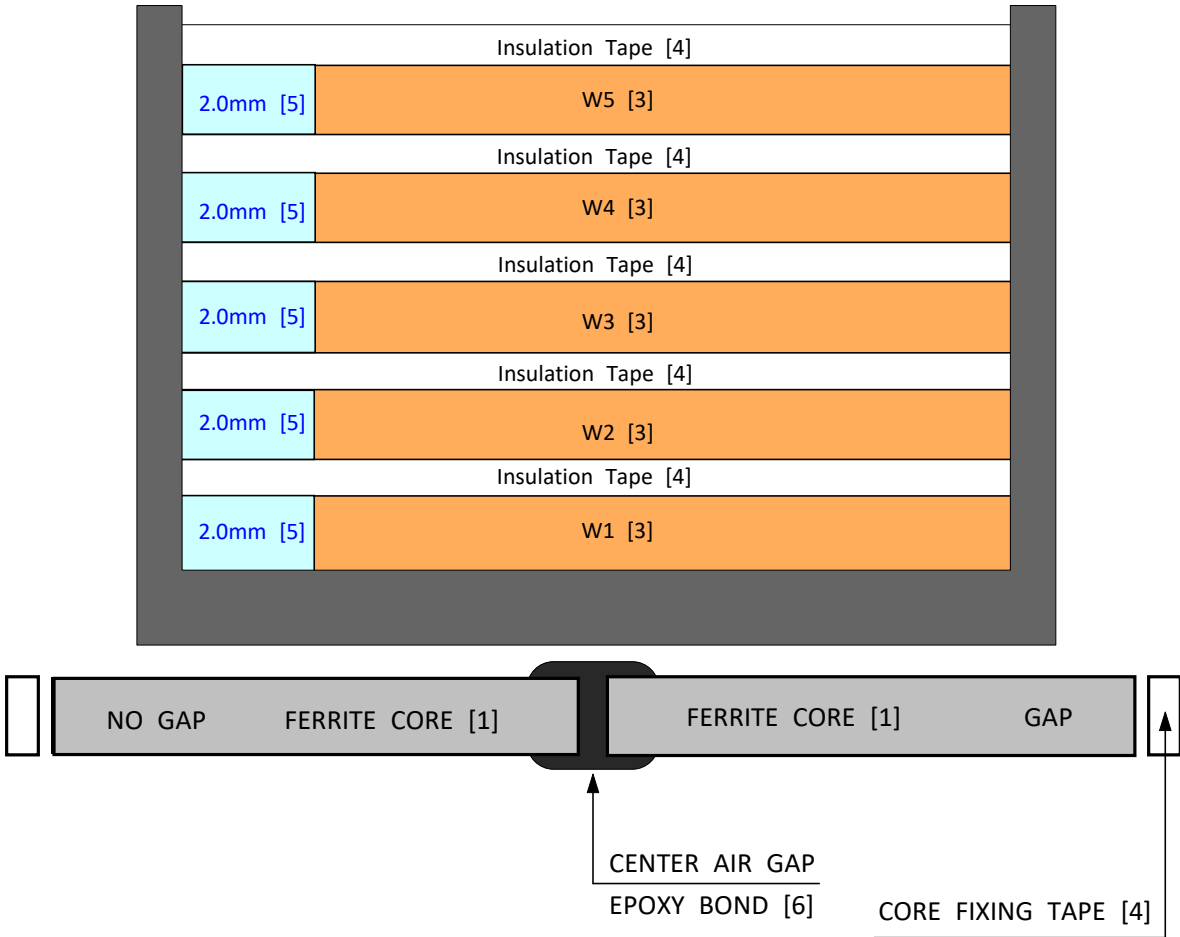
SPECIFICATIONS

PART NAME	TRANSFORMER	MODEL NO.	PN042HTCA-9080VQ
CODE NO.	1400651	DESCRIPTION	EER3019

11. INTERNAL CONSTRUCTION

< PIN SIDE >

< TOP SIDE >



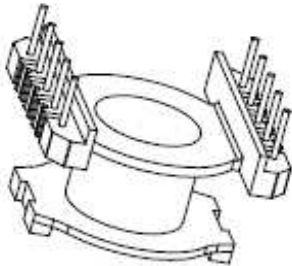
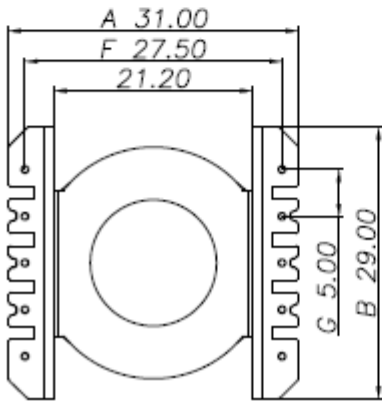
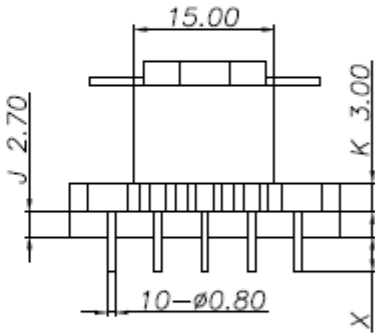
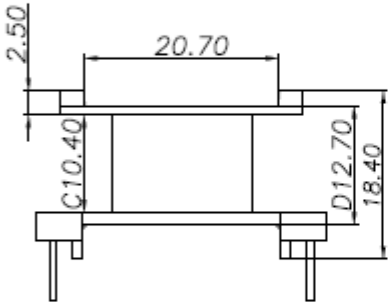
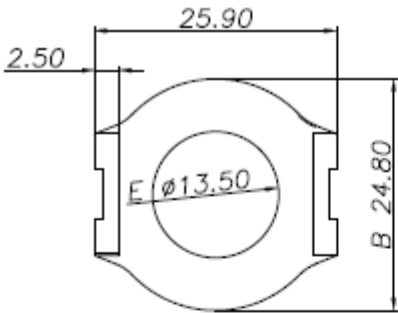
- WINDING :
- PS TAPE :
- BARRIER TAPE :
- EPOXY BOND :

SPEC NO.	WS-S2022092201	DATE	2022. 09. 22	SHEET NO.	10
 山东晤松电子 SHANDONG WUSONG ELECTRONIC TECHNOLOGY			DRAWN 	CHECKED 	APPROVED 

SPECIFICATIONS

PART NAME	TRANSFORMER	MODEL NO.	PN042HTCA-9080VQ
CODE NO.	1400651	DESCRIPTION	EER3019

22. BOBBIN DIMENSIONS [UNIT:mm]



SPEC NO.	WS-S2022092201	DATE	2022. 09. 22	SHEET NO.	19
 山东晤松电子 SHANDONG WUSONG ELECTRONIC TECHNOLOGY			DRAWN 	CHECKED 	APPROVED 

CUSTOMER : 파워넷

SPECIFICATION

SHEET NO.

2

OF

8

DATE

2020.04.08

PART NAME

BAR CHOKE COIL

MODEL NAME

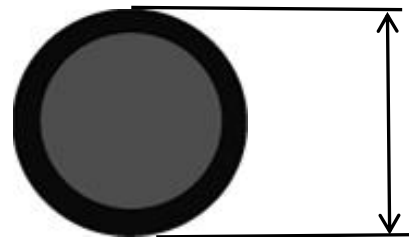
PART NO.

DESCRIPTION

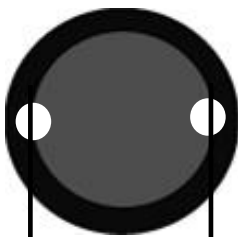
R 5X12mm 2.0uH BAR CHOKE

4. APPEARANCE & DIMENSION (UNIT:m/m)

<TOP VIEW>

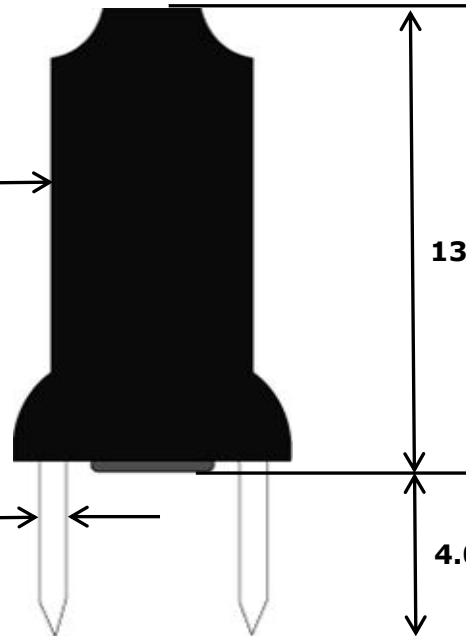


9.5 MAX



7.0 ± 0.5

H.S TUBE



13.5 MAX

0.8±0.1

4.0 ± 0.5

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1				YEON		MIN
2						
3						
4						

BOSUNG ELECTROCIS CO.

CUSTOMER : 파워넷

SPECIFICATION

SHEET NO.

3

OF

8

DATE

2020.04.08

PART NAME

BAR CHOKE COIL

MODEL NAME

PART NO.

DESCRIPTION

R 5X12mm 2.0uH BAR CHOKE

5. WINDING SPEC

START & FINISH

TYPE OF WIRE

2UEW 0.8Φ

TURNS

10.5 Ts REF

WINDING METHODE

SOLENOID WINDING
[C . C . W]

6. ELECTRICAL CHARACTERISTIC

NO	ITEM	MESURE	SPECIFICATION	REMARKS
1	INDUCTANCE	START & FINISH	2.0[uH] ± 20%	HIOKI3522 LCR METER at 1kHz 1V
2	DC RESISTANCE	START & FINISH	0.01[Ω] MAX	WHEATSTONE BRIDGE TYPE 2755
3	DIELECTRIC WITHSTANDING TEST	COIL & CORE	AC 1 [KV] , FREQUANCY 60 [Hz] , 1 MINUTES, CUT OFF CURENT 2 [mA]	KIKUSUI TOS5302
4	INSULATION RESISTANCE	COIL & CORE	DC 500 [V] , 100 [MΩ] MIN	KIKUSUI TOS5302

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1				YEON		MIN
2						
3						
4						

BOSUNG ELECTROCIS CO.

CUSTOMER : 파워넷

SPECIFICATION

SHEET NO.

4

OF

8

DATE

2020.04.08

PART NAME

BAR CHOKE COIL

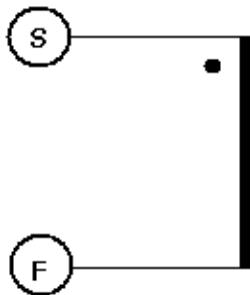
MODEL NAME

PART NO.

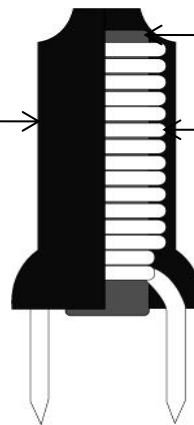
DESCRIPTION

R 5X12mm 2.0uH BAR CHOKE

7. SCHEMATIC DIAGRAM



(3)TUBE



(1)CORE

(2)COIL

8. MATERIAL LIST

NO	ITEM	MATERIAL & DIMENSION	MANUFACTURE	REMARK
1	CORE	JA3 / S6 DR 5X12mm	JIACI(ZHUHAI)ELECTRONICS CO.,LTD. RUIYUAN ELECTRONICS CO.,LTD.	EQU
2	WIRE	2UEW 0.8Φ	CNI CABLE CO., LTD. CHUNYI ELECTRICAL APPLANCES CO.,LTD.	E210918 E198440 EQU
3	TUBE	HEAT SHRINKABLE TUBE(COLOR:BLACK)	XINGQI PLASTIC PRODUCTS CO.,LTD.	E350991 EQU
-	EPOXY	EPI CHEM-2001HS FK661	SAMSIN CHEMICAL CO.,LTD. QIFU ELECTRONIC MATERIALS FACTORY	EQU
-	SOLDER BAR	SC00	HANHUA TIN CO.,LTD.	EQU
-	FLUX	F183	ZHUHAI JIELIXIN ELECTRONICS CO.,LTD.	EQU

9. TABLE OF STANDARD CHARACTERISTICS OF MATERIALS

PROPEY UNIT	μiac	Bms	Br	WORKING	Tc
MATERIAL	±25%	GAUSS	GAUSS	Frequency(MHZ)	℃
JA3	300	2400	1300	0.1~2.0	150

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1				YEON		MIN
2						
3						
4						

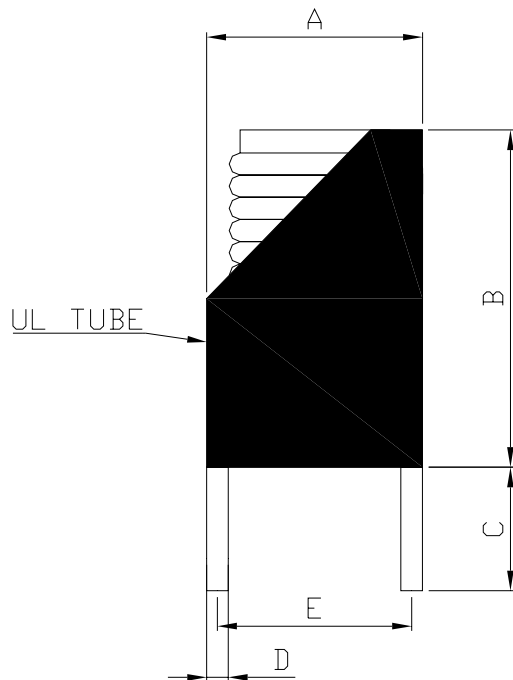
BOSUNG ELECTROCIS CO.

SPECIFICATION FOR APPROVAL

CUSTOMER NAME: _____ CUSTOMER PT/NO: 1420969

TRG PT/NO: ITP0512M2R0BU SAMPLE SUBMIT NO: _____ DATE: 2020.03.31

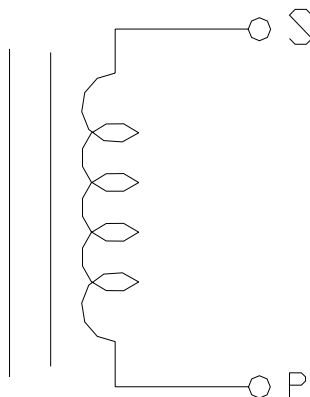
1. CONFIGURATION & DIMENSIONS (mm):



	DIME	TOL
A	9.5	MAX
B	13.5	MAX
C	4.0	±0.5
D	0.8	±0.1
E	7.0	±0.5

NO	Terminal		Wire	Turns	Core
	Start	Finish			
L	S	F	2UEW 0.8mm	10.5Ts REF.	5*12mm

2. SCHEMATIC:



SPECIFICATION FOR APPROVAL

CUSTOMER NAME: _____ CUSTOMER PT/NO: 1420969

TRG PT/NO: ITP0512M2R0BU SAMPLE SUBMIT NO: _____ DATE: 2020.03.31

3. MATERIAL LIST:

NO.	Object/Part no.	Manufacturer/Trademark.	Type/Model NO.	UL CARD
1	CORE	TONGLI ELECTRICITY CO.,LTD	NiZn	N/A
		FENG YI MAGNETO ELECTRICITY CO.,LTD	NiZn	N/A
		FUCI ELECTRICITY CO.,LTD	NiZn	N/A
2	WIRE	PROSPERITY ELECTRIC WIRE &CABLE.CO	UEW@	E196072
		PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U@	E201757
3	EPOXY	DONGGUAN EATTO ELECTRONIC MATERIAL CO LTD	E-500(XX)	E218090
		DONG GUAN SHI PAI HUA CHUANG MATERIAL FTY	H907-H##	E304477
4	UL TUBE	DONGGUAN SALIPT CO LTD	SALIPT S-901	E209436
5	SOLDER	METALLOY SOLDER(SUZHOU) CO.,LTD.	D9930/SN100	N/A

4. ELECTRONICAL SPECIFICATION: @25°C

1. INDUCTANCE: L =2.0uH±20% (@1KHz/1.0V) (Tester Model: Chroma-3312)

2. D.C. Resistance: R=10.0mohm MAX (Tester Model: Chroma-16502)

3. HI-POT: Coil to Core: 1.0KVAC/2mA/60s (@60Hz) (Tester Model: Chroma-19073)

4. IR: Coil to Core: 100M Ω @500VDC (Tester Model: Chroma-19073)

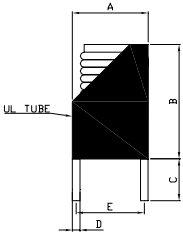
Notes:

1. This part is ROHS compliant
2. Operating Temperature Range: -25°C to +85°C
3. Storage temperature range: -40°C to +65°C



三弦電子科技(昆山)有限公司
Trigon Electronics (kunShan) Limited
样品测试报告

Sample Test Report

产品名称 Product	INDUCTORS	料号 TRIGON P/N	ITP0512M2R0BU			数量	5PCS																				
客户 CUSTOMER		客户料号 CUSTOMER P/N				测试日期	2020. 03. 30																				
测试条件 Conditions	1KHz/1V																										
项目 ITEM 序号 NO.	尺寸(mm) Dimensions					电气特性 Electrical Characteristics			判定 (OK/NG)																		
	A	B	C	D	E	L(±20%)	DCR(Max)	IDC(Max)																			
	9.5MAX	13.5MAX	4.0±0.5	0.8±0.1	7.0±0.5	2.0uH	10mohm	Coil to Core:1.0KVAC/ 2mA/60s																			
1	8.94	12.58	4.21	0.79	7.10	2.08	7.56	OK	OK																		
2	8.94	12.69	4.16	0.79	7.09	2.05	7.52	OK	OK																		
3	8.93	12.64	4.15	0.79	7.13	1.98	7.52	OK	OK																		
4	8.91	12.55	4.19	0.79	7.14	2.03	7.49	OK	OK																		
5	8.92	12.54	4.22	0.80	7.12	2.01	7.49	OK	OK																		
外观尺寸:																											
<table><thead><tr><th></th><th>DIME</th><th>TOL</th></tr></thead><tbody><tr><td>A</td><td>9.5</td><td>MAX</td></tr><tr><td>B</td><td>13.5</td><td>MAX</td></tr><tr><td>C</td><td>4.0</td><td>±0.5</td></tr><tr><td>D</td><td>0.8</td><td>±0.1</td></tr><tr><td>E</td><td>7.0</td><td>±0.5</td></tr></tbody></table>											DIME	TOL	A	9.5	MAX	B	13.5	MAX	C	4.0	±0.5	D	0.8	±0.1	E	7.0	±0.5
	DIME	TOL																									
A	9.5	MAX																									
B	13.5	MAX																									
C	4.0	±0.5																									
D	0.8	±0.1																									
E	7.0	±0.5																									
备注: REMARK:							CHECKED BY	TEST BY																			
							Louis	Jacky																			

SPECIFICATIONS	ITEM	COMMON FILTER	Rev
	TNC SPEC NO	CVA6011RNF2	0

2. ELECTRICAL CHARACTERISTIC

NO	ITEM	TERMINAL	SPECIFICATION			REMARKS
1	RATED VOLTAGE	LINE TO LINE	DC 50V			
2	RATED CURRENT	START-FINISH	6.0A			
3	INDUCTANCE	START-FINISH	160KHz	11.0uH	+ 50%, -30%	HP-4194A 1V (25℃±2℃)
4	TEMPERATURE RISE	AT RATED CURRENT	55℃ MAX			
5	DC RESISTANCE	START-FINISH	16.0 mΩ MAX			HIOKI 3540 (25℃±2℃)
6	WITHSTANDING VOLTAGE	LINE TO LINE	AC 100V 1 MINUNE.			TOS-5101 CUN OFF CURRENT (5mA)

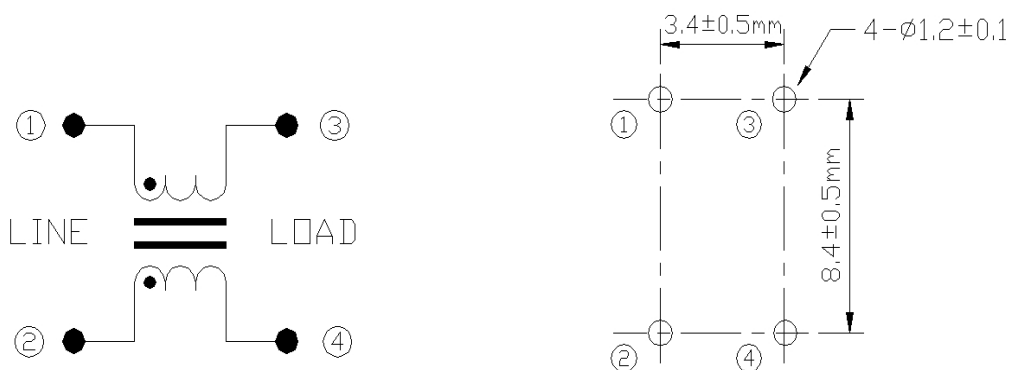
3. OPERATING TEMPERATURE RANGE

-30℃ TO +105℃ INCLUDING TEMPERATURE RISE.

4. KEEP TEMPERATURE RANGE

-30℃ ~ +60℃.

5. CIRCUIT DIAGRAM



Minimum PCB Piercing HOLE

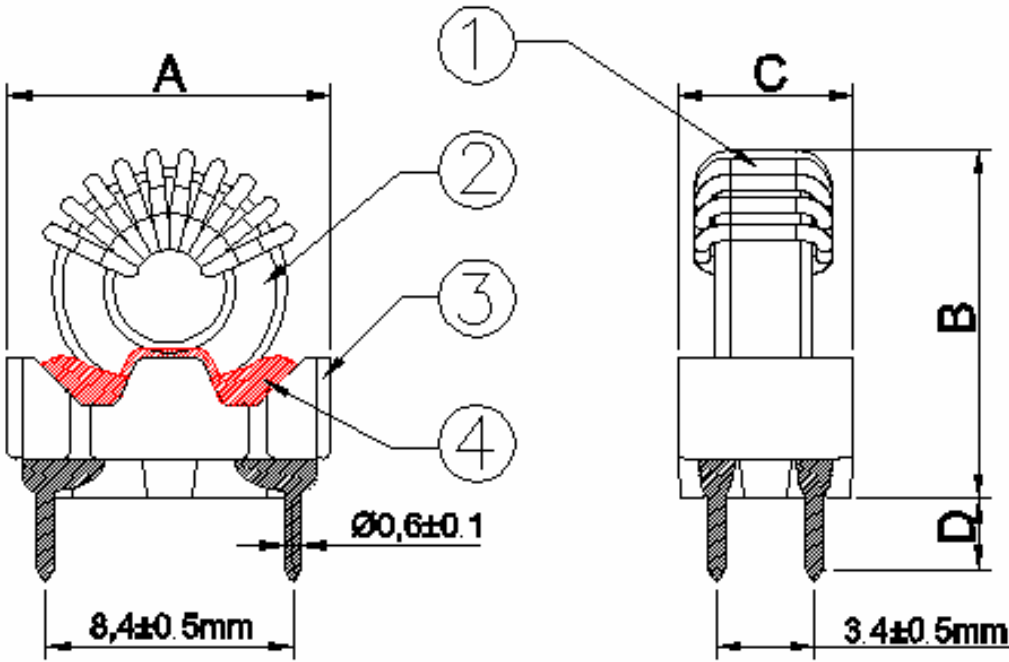
 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	 RYU.H.E. R&D	 KANG.S.W. R&D	 KOO.J.H. R&D	3/12

SPECIFICATIONS	ITEM		COMMON FILTER	Rev
	TNC SPEC NO		CVA6011RNF2	0

6. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS	WINDING METHOD	UNBALANCE SPECIFICATION
	START	FINISH				
L1	1	3	UEW 0.55Φ (RED)	6 ±1Ts	HANDMADE	BETWEEN L1 AND L2 (1.99uH MAX)
L2	2	4	UEW 0.55Φ (NATURAL)			

7. SHAPE AND DIMENSION



DIMENSION	A	B	C	D
	11.5mm MAX	13.0mm MAX	6.5mm MAX	Not include solder fillet 2.8 ± 0.5mm

TNC TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	RYU.H.E R&D	KANG.S.W R&D	KOO.J.H R&D	4/12

SPECIFICATIONS	ITEM	COMMON FILTER	Rev
	TNC SPEC NO	CVA6011RNF2	0

8. MATERIAL LIST

No.	NAME	SPECIFICATION		MANUFACTURER	COLOR	UL No.
1	Enamel Wire	UEW 0.55Φ / 6±1Ts	UEW	Hwa Il Electronics Co.,Ltd	YELLOW RED	E140246
			UEW	SHANDONG PENGTAI STOCK CO LTD	YELLOW RED	E166187
2	Ferrite Core	L7H T 8x3x4-K K081 T 8X4X3UC		Korea TDK Co., Ltd ACME Electronics Corporation	WHITE	
3	Coil Base	Phenolic (PF 2736(a)(b)) UL 94 V-0 Class		Hexion GmbH	BLACK	E61040
		Phenolic (T375HF) UL 94 V-0 Class		CHANG CHUN Plastics Co.,Ltd	BLACK	E59481
4	Epoxy	EPOXY RESIN	NA-010	ND Chemical	WHITE	
			EA610A / EA610B	Chem Tech	Transparent	

 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
				5/12

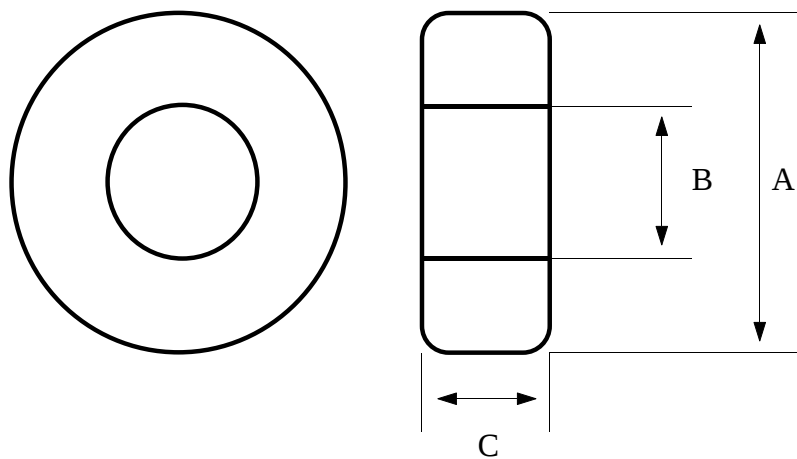
SPECIFICATIONS	ITEM	COMMON FILTER	Rev
	TNC SPEC NO	CVA6011RNF2	0

14. FERRITE CORE SPECIFICATION

- Characteristics

Symbol	Unit	L7H T 8/3/4 - K	K081 T8*4*3UC
μ_i	-	800±25%	800±25%
B _{ms}	mT	390	410
H _{cms}	A/m	16	27
B _{rms}	mT	220	272
T _c	℃	>180	>190
TANδ /μiac	*10 ⁻⁶	<80	<80
α _{μr}	*10 ⁻⁶ /℃	7~15	7~15
ρ	Ω.m	10 ⁵	10 ⁶
d	g/cm ³	5.1	5.1

- Dimension (Before Coating)

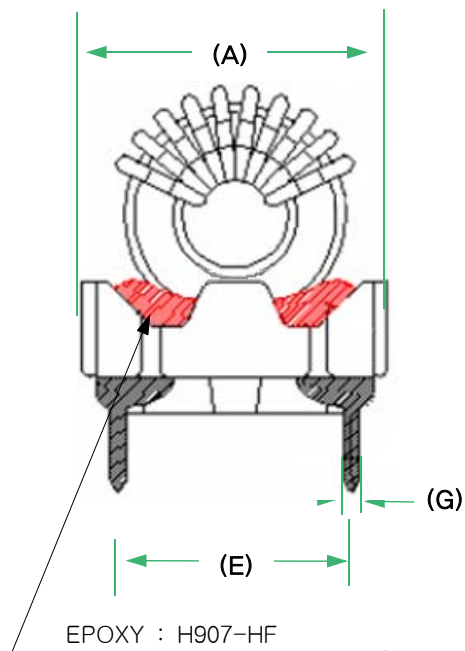


A: 8.0 ±0.4 B: 4.0 ±0.2 C: 3.0 ±0.3

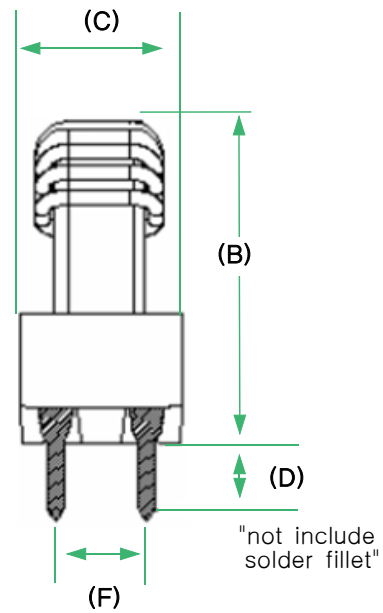
SPECIFICATIONS		SHEET NO.	6 OF 26
		DATE	2018. 11. 16.
DESCRIPTION	COMMON FILTER	MODEL	A3514_RPN
CODE NO.	1420830	TYPE	T8Φ

6. APPEARANCE & DIMENSION (UNIT:mm)

<< FRONT VIEW >>



<< SIDE VIEW >>



	A	B	C	D	E	F	G
DIMENSION	11.5mm MAX	13.0mm MAX	6.7mm MAX	2.8 ±0.5	8.4 ±0.5	3.4 ±0.5	Φ0.6 ±0.1



HEFEI PHOENIX ELECTRONICS
TECHNOLOGY CO LTD

QiShan Road Juchao Economy development area ChaoHu
Hefei, Anhui 230000 CHINA

DESIGN

QQ.GAO

FILE NO.

CHECK

SJ.KIM

APPROVAL

HL.PARK

SPECIFICATIONS		SHEET NO.	7 OF 26
		DATE	2018. 11. 16.
DESCRIPTION	COMMON FILTER	MODEL	A3514_RPN
CODE NO.	1420830	TYPE	T8Φ

7. METHOD OF WORK



(TOP VIEW)



(SIDE VIEW)



(BOTTOM VIEW)



(FRONT VIEW)



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Hefei, Anhui 230000 CHINA

DESIGN

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FILE NO.

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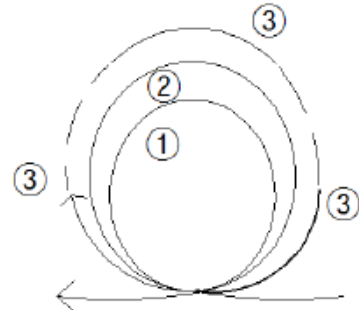
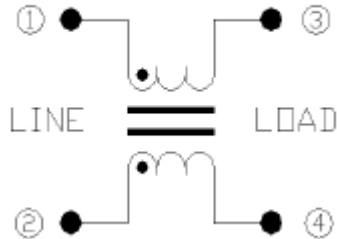
SJ.KIM

APPROVAL

HL.PARK

SPECIFICATIONS		SHEET NO.	8 OF 26
		DATE	2018. 11. 16.
DESCRIPTION	COMMON FILTER	MODEL	A3514_RPN
CODE NO.	1420830	TYPE	T8Φ

8. SCHEMATIC DIAGRAM



WINDING	BASE VIEW C.W
CUTTING PIN	-
N.C PIN	-
TUBE PIN	-

9. WINDING SPECIFICATION

WINDING ORDER	SYMBOL	TERMINAL NO		WIRE	TURNS	WINDING METHOD	REMARKS
		START	FINISH				
W1	L1	1	3	1UEW 0.55φ (RED)	6 ± 1	BIFILAR	HANDMADE
W2	L2	2	4	1UEW 0.55φ (NATURAL)			
WIRE SPECIFICATION		CONDUCTOR					
		WIRE		DIAMETER(mm)	TOLERANCE OF DIAMETER(mm)		
		1UEW		0.55	±0.004		

* REGARDING ABOVE TABLE STANDARD THICKNESS OF WIRE MUST BE OVER SPECIFICATION RANGE.



HEFEI PHOENIX ELECTRONICS
TECHNOLOGY CO LTD

QiShan Road Juchao Economy development area ChaoHu
Hefei, Anhui 230000 CHINA

DESIGN	CHECK	APPROVAL
QQ.GAO	SJ.KIM	HL.PARK
FILE NO.		

SPECIFICATIONS		SHEET NO.	9 OF 26
		DATE	2018. 11. 16.
DESCRIPTION	COMMON FILTER	MODEL	A3514_RPN
CODE NO.	1420830	TYPE	T8Φ

10.ELECTRICAL CHARACTERISTIC

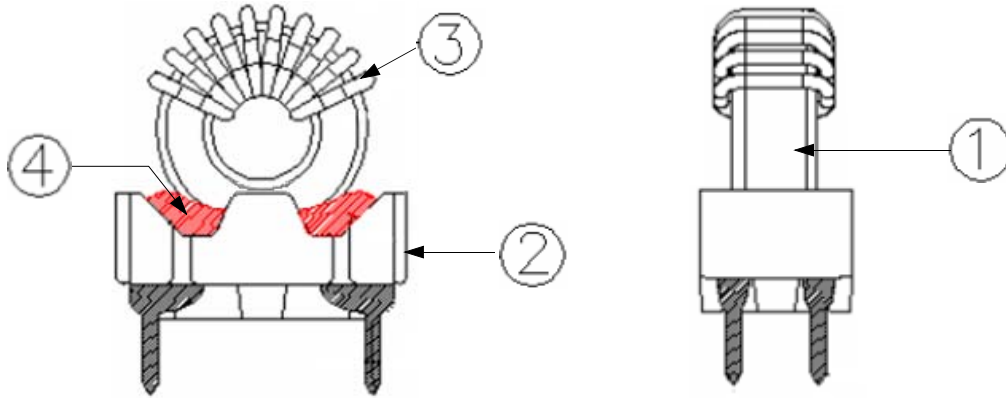
No	ITEM	TERMINAL		SPECIFICATION	REMARKS
		START	FINISH		
1	INDUCTANCE	1	3	11.0 uH +5.5uH -3.3uH	TEST-T3000A LCR-METER at 160 KHz 1.0 Vrms (25℃)
		2	4	11.0 uH +5.5uH -3.3uH	
2	DIFFERENCE INDUCTANCE	L1 - L2		1.99 uH MAX	
3	DC RESISTANCE	1	3	16.0 mΩ MAX	TH-2516 at 25℃
		2	4	16.0 mΩ MAX	
5	HI-POT TEST	COIL TO COIL		AC0.1 KVrms, 1 MINUTE.	CUT OFF CURRENT <u>5</u> mA (CH-19053)
6	INSULATION RESISTANCE	COIL - CORE COIL - COIL		DC 500V, 100MΩ MIN.	CH-19053
7	LAYER SHORT	AC 1.5 KV, 60Hz			T-7900 IMPULSE TESTER

* TEST CONDITION : TEMPERATURE 20℃±5℃, HUMIDITY 65%±20%

 HEFEI PHOENIX ELECTRONICS TECHNOLOGY CO LTD QiShan Road Juchao Economy development area ChaoHu Hefei, Anhui 230000 CHINA	DESIGN	CHECK	APPROVAL
	QQ.GAO	SJ.KIM	HL.PARK
	FILE NO.		

SPECIFICATIONS		SHEET NO.	12 OF 26
		DATE	2018. 11. 16.
DESCRIPTION	COMMON FILTER	MODEL	A3514_RPN
CODE NO.	1420830	TYPE	T8Φ

15. MATERIAL LIST



No	Component	Name of Material	Manufacturer Component	Manufacturer of Site	Class	UL file No
1	Core	T8x4x3 HP-10	HUZHOU HANGYU ELECTRONICS CO.,LTD	CHINA		
		T8x4x3 L800	HAININ LIANFENG MAGNET INDUSTRY CO.,LTD	CHINA		
2	BASE	94V-0 PHENOLIC (T375HF), 4p	CHANG CHUN Plastics Co.,Ltd	CHINA		E59481
		94V-0 PHENOLIC (PF 2736(a)(b)), 4p	HEXION GMBH	GERMANY		E61040
3	Wire	POLYURETHANE 1UEW 0.55Φ	HANGZHOU HONGTONG WIRE & CABLE CO.,LTD	CHINA		E326617
			SHANDONG SAINT ELECTRIC CO.,LTD	CHINA		E194410
			GUANGZHOU WANBAO ENAMELLED WIRE CO LTD	CHINA		E167402
4	EPOXY	H907-HF	DONG GUAN HUA CHUANG ELECTRONIC MATERIAL FACTORY			
5	Solder	LEAD FREE	ZHEJIANG QIANGLI ELECTRONIC MATERIAL CO.,LTD			
6	Flux	DA-800A	HUI ZHOU QIANGDA ELECTRONICS INDUSTRY CO.,LTD	CHINA		



HEFEI PHOENIX ELECTRONICS
TECHNOLOGY CO LTD

QiShan Road Juchao Economy development area ChaoHu
Hefei, Anhui 230000 CHINA

DESIGN

CHECK

APPROVAL

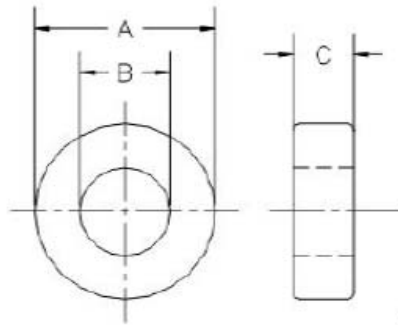
QQ.GAO

SJ.KIM

HL.PARK

FILE NO.

SPECIFICATIONS		SHEET NO.	13 OF 26
		DATE	2018. 11. 16.
DESCRIPTION	COMMON FILTER	MODEL	A3514_RPN
CODE NO.	1420830	TYPE	T8Φ

16. CORES DIMENSIONS (UNIT:mm)

喷涂前

A:8.0±0.3mm B:3.0±0.3mm C:4.5±0.2mm

喷涂后

A:8.15±0.3mm B:3.15±0.3mm C:4.35±0.25mm

ITEM	SYMBOL	TEMP.	Freq.	LIANFENG (L800)	HANGYU (HP10)
INITIAL PERMEABILITY	μ_i	25 °C	≤10KHz	800±25%	800±25%
SATURATION FLUX DENSITY	B _{ms} (mt)	25 °C	10KHz	410	410
RESIDUAL FLUX DENSITY	Br _{ms} (mt)	25 °C	10KHz	272	272
COERCIVITY	H _c (A/m(Oe))	25 °C	10KHz	21	21
RELATIVE LOSS FACTOR	$\frac{\tan\delta}{\mu_i}$ (10 ⁻⁶ / °C)	25°C	100KHz	17	17
TEMPERATURE FACTOR OF PERMEABILITY	a _F (10 ⁻⁶ / °C)	20°C~60°C	10KHz	8	8
CURIE TEMPERATURE	T _c (°C)			≥190	≥190
ELECTRICAL RESISTIVITY	ρ (Ω·m)			> 10 ⁶	> 10 ⁶
APPARENT DENSITY	d (g/cm ³)			5.10	5.10



HEFEI PHOENIX ELECTRONICS
TECHNOLOGY CO LTD

QiShan Road Juchao Economy development area ChaoHu
Hefei, Anhui 230000 CHINA

DESIGN

CHECK

APPROVAL

QQ.GAO

SJ.KIM

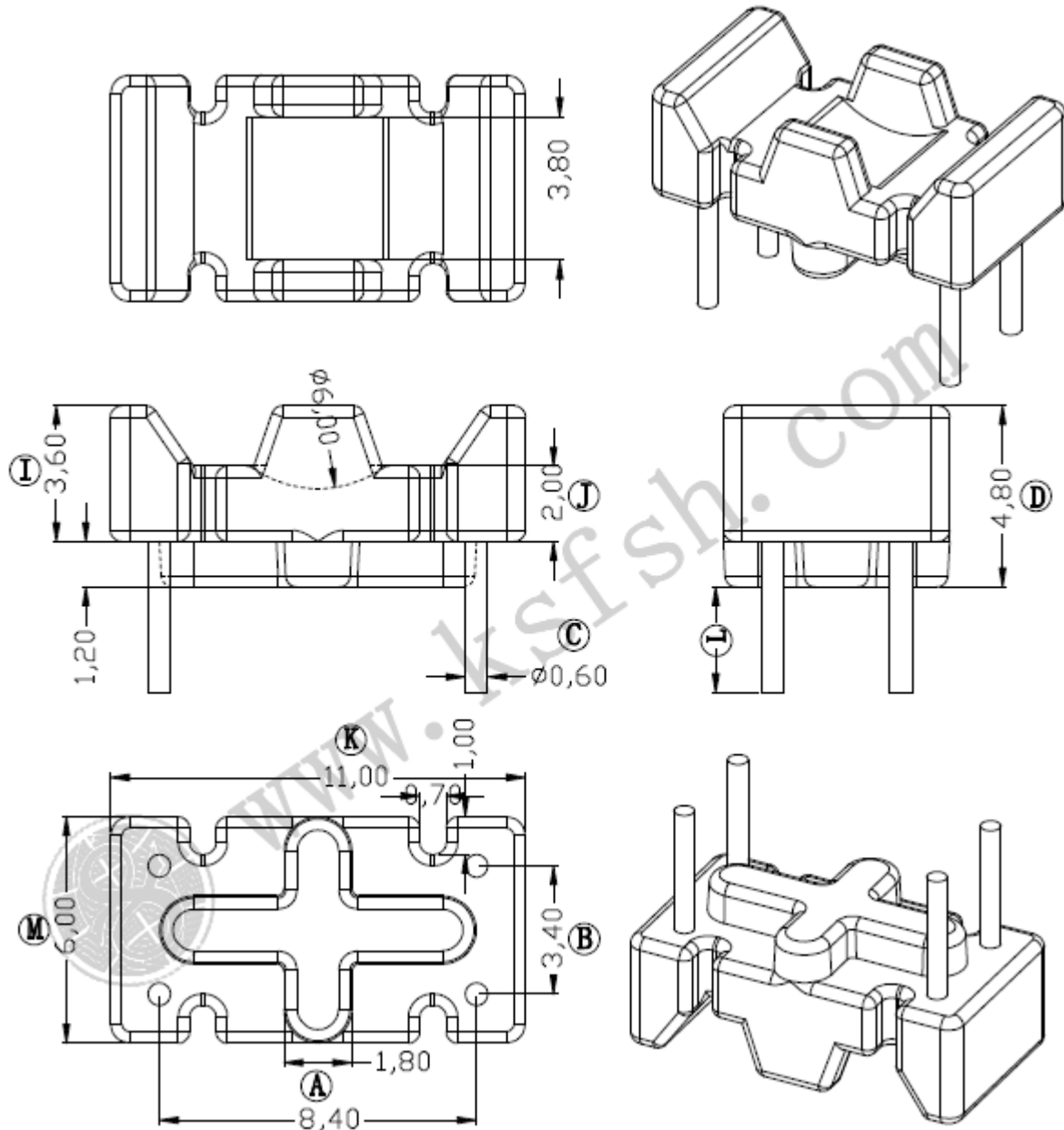
HL.PARK

FILE NO.

SPECIFICATIONS

DESCRIPTION	COMMON FILTER	SHEET NO.	1 OF 26
		DATE	2018. 11. 16.
CODE NO.	1420830	MODEL	A3514_RPN
		TYPE	T8Φ

17. BASE DIMENSIONS (UNIT:mm)



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FILE NO.

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	QV181610A	1

2. ELECTRICAL CHARACTERISTIC

NO	ITEM	TERMINAL	SPECIFICATION			REMARKS
1	RATED VOLTAGE	LINE TO LINE	AC 300V			
2	RATED CURRENT	START-FINISH	2.0A			
3	INDUCTANCE	START-FINISH	16KHz	7.0mH	MIN.	HP-4194A 1V (25℃±2℃)
4	TEMPERATURE RISE	AT RATED CURRENT	55℃ MAX			
5	DC RESISTANCE	START-FINISH	156.0 mΩ MAX			HIOKI 3540 (25℃±2℃)
6	WITHSTANDING VOLTAGE	LINE TO LINE	AC 1,500V 1 MINUTE.			TOS-5101 CUT OFF CURRENT (5mA)

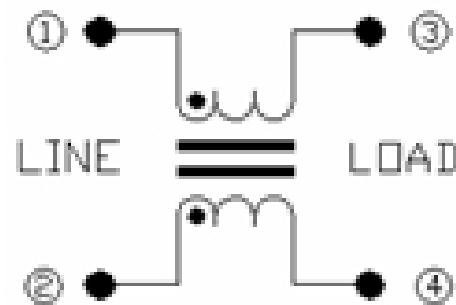
3. OPERATING TEMPERATURE RANGE

-30℃ TO +120℃ INCLUDING TEMPERATURE RISE.

4. KEEP TEMPERATURE RANGE

-30℃ ~ +60℃.

5. CIRCUIT DIAGRAM



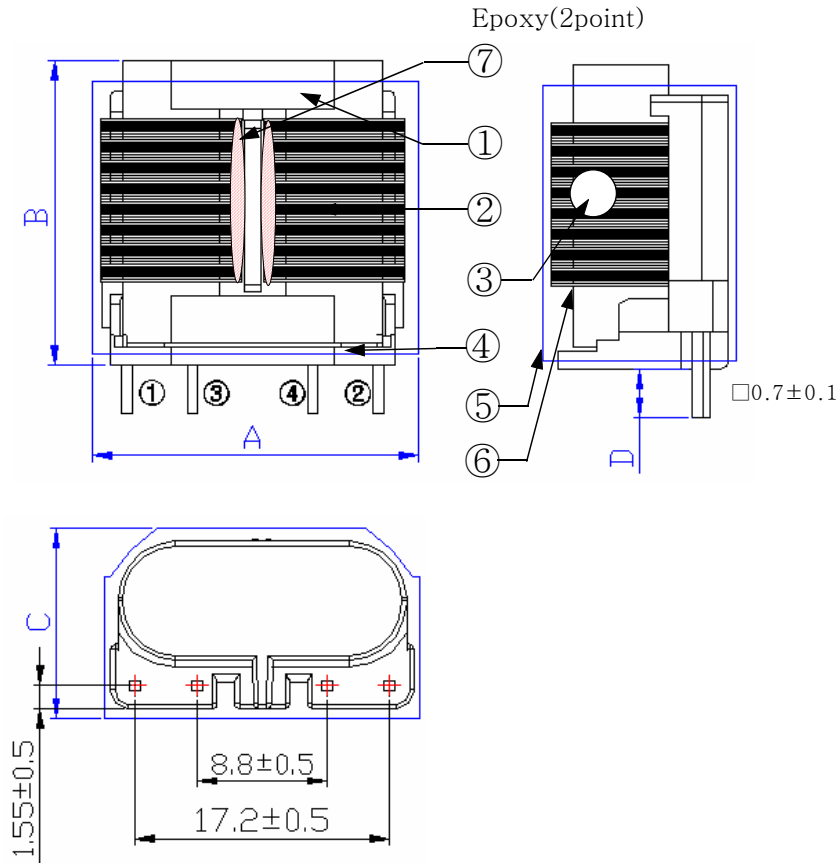
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SPECIFICATIONS	ITEM		LINE FILTER	Rev
	TNC SPEC NO		QV181610A	1

6. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS	WINDING METHOD	UNBALANCE SPECIFICATION
	START	FINISH				
L1	1	3	UEW 0.20X1.0mm	44Ts Ref	AUTO WINDING	BETWEEN L1 AND L2 (0.23mH MAX)
L2	2	4				

7. SHAPE AND DIMENSION



DIMENSION	A	B	C	D
	25.0mm MAX	19.5mm MAX	16.0mm MAX	Not include solder fillet 2.8 ± 0.5mm

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SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	QV181610A	1

8. MATERIAL LIST

No.	NAME	SPECIFICATION		MANUFACTURER	COLOR	UL No.
1	Core Cover	LCP GA130(r)		POLYPLASTICS CO LTD	BLACK	E106764
2	Rectangular Copper Wire	UEW 0.20X1.0mm / 44Ts Ref	SFT- UEWH	WELL ASCENT ELECTRONIC CO LTD	YELLOW	E318511
			1UEWF /180	SHANDONG PENGTAI STOCK CO LTD	YELLOW	E166187
3	Ferrite Core	R12KF SQ1816 HL12 1816SQ		LAIWU CHAINWELL ELECTRONIC&MATERIAL.CO.,Ltd RUYUAN DONGYANGGUANG MAGNETIC MATERIAS CO.,LTD	BLACK	
4	Coil Base	Phenolic (PF 2736(a)(b)) UL 94 V-0 Class		Hexion GmbH	BLACK	E61040
		Phenolic (T375HF) UL 94 V-0 Class		CHANG CHUN Plastics Co.,Ltd	BLACK	E59481
5	Insulation tube	Heat Shrink Tube HKCT2(HF)		HAN KYUNG COMPONENT	BLACK	E222852
6	Impregnant	DVB-2177(M)		NOROO PAINT & COATING CO.,LTD	Transparent	E93947
7	Epoxy	EPOXY RESIN	NA-010	ND Chemical	WHITE BLACK	
			EA610A / EA610B	Chem Tech	WHITE	
A	Marking	Bon Mar Que		T&K Toka	SILVER	
		IR-254WTSPB/MC-254WT		DOMINO	WHITE	

MARKING
181610



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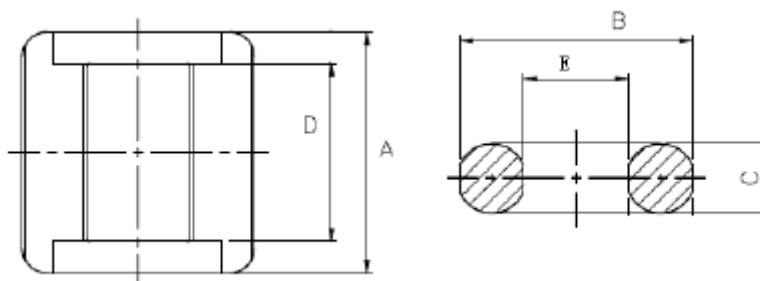
SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	QV181610A	1

15. FERRITE CORE SPECIFICATION

- Characteristics

Symbol	Unit	R12KF SQ1816	HL12 1816SQ
μ_i	-	12,000±30%	12,000±30%
B _{ms}	mT	380	360
H _{cms}	A/m	6.0	4.5
B _{rms}	mT	100	100
T _c	℃	>110	>110
TANδ /μiac	*10 ⁻⁶	<9.0	<7.0
α _{μr}	*10 ⁻⁶ /℃	0~1.5	-0.5~3.0
ρ	Ω.m	0.1	0.15
d	g/cm ³	4.9	4.95

- Dimension



A: 17.8 ±0.30 **B: 16.2 ±0.30** **C: 5.5 ±0.20**
D: 13.0 ±0.20 **E: 6.0 ±0.20**



NETWORK CAMERA, PNM-C34404RQPZ

PoE(55V ) 1.17A

M/C: PNM-C34404RQPZ/KEX Fac.ID:D



2023.07 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

Risk Group 1 (Groupe de Risque 1)

WARNING

IR emitted from this product
Do not stare at operating lamp

MISE EN GARDE

IR émis par ce produit
Ne pas regarder fixement la lampe



Product tested against IEC62471













