

TEST REPORT

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(1) / (24) Pages	
---	---	--	--

1. Applicant

- Name: Hanwha Techwin Co., Ltd.
- Address: Hanwha Techwin R&D center, 6 Pangyo-ro 319Beon-gil,
Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt: 2017-10-26

2. Manufacturer

- Name: HANWHA TECHWIN (TIANJIN) CO.,LTD.
- Address: No.11 Weiliu Rd, Micro-Electronic Industrial
Park, TEDA, Tianjin, 300385, People's Republic of China

3. Test sample / Model: THERMAL CAMERA / TNO-4040T* (*N:NT/P:PAL)

4. Date(s) of test: 2017-11-01

5. Test Standard (Method) used: NEMA 250-2014 Enclosures for Electrical Equipment (1000 Volts Maximum)

6. Results: Pass

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This report shall not be reproduced except in full without the written approval of CTK

Approval	Tested by: WonHyeon Choi	Technical Manager: YenHwang Jung
	(Signature)	(Signature)

CTK Co., Ltd.



2018-03-07



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(3) / (24) Pages

NETWORK THERMAL CAMERA
MODEL : TNO-4030TP
AC24V~50Hz 0.91A / DC12V ≡ 0.83A
PoE(37-57V≡) 0.27A
M/C : VCVF002PEU Fac. ID : S
Jan 2010 S/N:XXXX XXXXXXXXXXXXX
MAC ADDRESS : XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA TECHWIN CO.,LTD.
MADE IN KOREA

제품명칭 : NETWORK THERMAL CAMERA
모 델 명 : TNO-4040TN
정격전압 : AC24V~60Hz 10.5W / DC12V≡ 9W
PoE(37-57V≡) 10W
M/C : VCVK018NDO

제조년월 : 2010.01 S/N:XXXX XXXXXXXXXXXXX
MAC ADDRESS : XX-XX-XX-XX-XX-XX
인증번호 : MSIP-REM-STW-TNO4050T

제조사/제조국가: 한화테크윈(주) / 한국

PT03-002454B

PT03-002454A

NETWORK THERMAL CAMERA
MODEL : TNO-4040TN
AC24V~60Hz 0.91A / DC12V ≡ 0.83A
PoE(37-57V≡) 0.27A
M/C : VCVF002PEU Fac. ID : D
Jan 2010 S/N:XXXX XXXXXXXXXXXXX
MAC ADDRESS : XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA TECHWIN CO.,LTD.
MADE IN KOREA

NETWORK THERMAL CAMERA
MODEL : TNO-4040TP
AC24V~50Hz 0.91A / DC12V ≡ 0.83A
PoE(37-57V≡) 0.27A
M/C : VCVF002PEU Fac. ID : S
Jan 2010 S/N:XXXX XXXXXXXXXXXXX
MAC ADDRESS : XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA TECHWIN CO.,LTD.
MADE IN KOREA

PT03-002454B

PT03-002454B

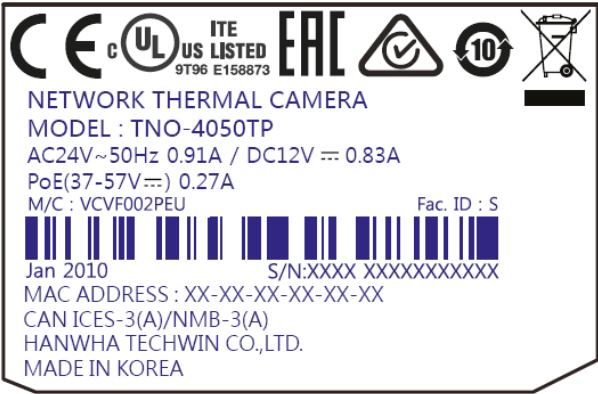
제품명칭 : NETWORK THERMAL CAMERA
모 델 명 : TNO-4050TN
정격전압 : AC24V~60Hz 10.5W / DC12V≡ 9W
PoE(37-57V≡) 10W
M/C : VCVK018NDO
Jan 2010 S/N:XXXX XXXXXXXXXXXXX
MAC ADDRESS : XX-XX-XX-XX-XX-XX
인증번호 : MSIP-REM-STW-TNO4050T
제조사/제조국가: 한화테크윈(주) / 한국

NETWORK THERMAL CAMERA
MODEL : TNO-4050TN
AC24V~60Hz 0.91A / DC12V ≡ 0.83A
PoE(37-57V≡) 0.27A
M/C : VCVF002PEU Fac. ID : D
Jan 2010 S/N:XXXX XXXXXXXXXXXXX
MAC ADDRESS : XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA TECHWIN CO.,LTD.
MADE IN KOREA

PT03-002454A

PT03-002454B

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(4) / (24) Pages	
---	---	--	--

 PT03-002454B

Test item particulars..... : Network Camera
Classification of installation and use : Outdoor(Watertight/Corrosion Resistant)
Possible test case verdicts: - test case does not apply to the test object..... : N/A - test object does meet the requirement : P (Pass) - test object does not meet the requirement..... : F (Fail) - test case does not evaluated to the test object : N/E

General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a ☐ comma / ☒ point is used as the decimal separator. Clause numbers between brackets refer to clauses in NEMA 250-2014 Name and address of factory (ies): 1. HANWHA TECHWIN (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(5) / (24) Pages

General product information:

Applied NEMA Rating : 4X

Model TNO-4040T* (*N:NT/P:PAL) is basic model which was tested.

Basic Model	TNO-4040T* (*N:NT/P:PAL)
Series model	TNO-4030T*, TNO-4050T* (*N:NT/P:PAL)

Model differences:

Series model differences are only for function not related to the quality of enclosure integrity.

Type 4X

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); that provides an increased level of protection against corrosion; and that will be undamaged by the external formation of ice on the enclosure.

Table 2-1
Comparison of Specific Applications of Enclosures for Indoor Nonhazardous
(Unclassified) Locations

Provides a Degree of Protection against the Following Conditions	Type of Enclosure									
	1	2	4	4X	5	6	6P	12	12K	13
Access to hazardous parts	X	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (falling dirt)	X	X	X	X	X	X	X	X	X	X
Ingress of water (dripping and light splashing)	...	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (circulating dust, lint, fibers, and flyings **)	...	...	X	X	...	X	X	X	X	X
Ingress of solid foreign objects (settling airborne dust, lint, fibers, and flyings **)	...	...	X	X	X	X	X	X	X	X
Ingress of water (hosedown and splashing water)	...	...	X	X	...	X	X	...	...	...
Oil and coolant seepage	...	...	...	...	...	...	...	X	X	X
Oil or coolant spraying and splashing	...	...	...	...	...	...	...	...	...	X
Corrosive agents	...	...	...	X	...	...	X	...	...	...
Ingress of water (occasional temporary submersion)	...	...	...	...	...	X	X	...	...	...
Ingress of water (occasional prolonged submersion)	...	...	...	...	...	...	X	...	...	...

** These fibers and flyings are not considered Class III type ignitable fibers or combustible flyings. For Class III type ignitable fibers or flyings see the *National Electrical Code®*, Article 500.5(D).

Table 2-2
Comparison of Specific Applications of Enclosures for Indoor & Outdoor Nonhazardous (Unclassified) Locations

Provides a Degree of Protection Against the Following Conditions	Type of Enclosure									
	3	3X	3R	3RX	3S	3SX	4	4X	6	6P
Access to hazardous parts	X	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (falling dirt)	X	X	X	X	X	X	X	X	X	X
Ingress of water (dripping and light splashing)	X	X	X	X	X	X	X	X	X	X
Ingress of water (rain, snow, and sleet **)	X	X	X	X	X	X	X	X	X	X
Sleet ***	...	...	...	...	X	X	...	...	...	...
Ingress of solid foreign objects (windblown dust, lint, fibers, and flyings****)	X	X	...	...	X	X	X	X	X	X
Ingress of water (hosedown and splashing water)	...	...	...	...	...	...	X	X	X	X
Corrosive agents	...	X	...	X	...	X	...	X	...	X
Ingress of water (occasional temporary submersion)	...	...	...	...	...	...	...	...	X	X
Ingress of water (occasional prolonged submersion)	...	...	...	...	...	...	...	...	...	X

** External operating mechanisms are not required to be operable when the enclosure is ice covered.

*** External operating mechanisms are operable when the enclosure is ice covered. See subsection 5.6.

**** These fibers and flyings are not considered Class III type ignitable fibers or combustible flyings. For Class III type ignitable fibers or flyings see the *National Electrical Code®*, Article 500.5(D).

Table 5-1A
Degrees of Protection Against Access to Hazardous Parts

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP First Characteristic Numeral
		Brief Description	Definition	
4X	5.7	Protected against access to hazardous parts with a wire	An access probe of 1.0 mm shall not penetrate	6

Table 5-1B
Degrees of Protection Against Solid Foreign Objects

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP First Characteristic Numeral
		Brief Description	Definition	
4X	<u>Non-vented</u> 5.7	Windblown dust protected	No ingress of dust	6
	<u>Vented</u> 5.5.1 Dust Blast Method			



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(7) / (24) Pages

Table 5-1C
Degrees of Protection against Water

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP Second Characteristic Numeral
		Brief Description	Definition	
4X	5.7	Protected against hose directed water	Water projected against the enclosure in any direction shall not enter	6 No Ingress Allowed*

Table 5-1D
Additional Protection

Enclosure Type	Test Conditions	Additional Protection		Corresponding IP Second Characteristic Numeral
		Brief Description	Definition	
4X	5.6 5.9 5.10	Special corrosion protection and undamaged by the external formation of ice	Enclosure provides increased corrosion protection and is not damaged by ice that forms on the outside	None

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(8) / (24) Pages	
---	---	--	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
3	CONSTRUCTION		

3.1	General		P
3.2	Units of Measurement		P
3.3	Materials-General	Enclosures are made of metal or polymeric materials	P
3.4	Materials-Polymeric	More than 650 mm ² (1 in ²) in area Polymeric Materials used is declared as Min. V-0 Used to UL certified material. (See the attachment 2)	N/E
3.5	Corrosion Protection	Stainless steel and/or aluminium are declared as the materials used (See the attachment 2)	N/E
3.6	Openings	No openings in Product	N/A
3.7	Mounting	Mounting means are external to the equipment cavity (See the attachment 1)	P
3.8	Conduit Connection	No conduit connection (See the attachment 1)	N/A
3.9	Hubs and Fittings	No Hubs and Fittings	N/A
3.10	Knockouts	No Knockouts	N/A
3.11	External Operating Mechanisms	No External Operating Mechanisms	N/A
3.12	Access to Interior	Needs tool to open unit	P
3.13	Closing Hardware	No closing Hardware	N/A
3.14	Gaskets	Gaskets made of a silicone Sponge Rubber (no Elastomeric or Thermoplastic used) (See clause 5.14 and the attachment 2)	P
3.15	Observation Windows	No Observation Window	N/A

4	MARKING		
----------	----------------	--	--

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(9) / (24) Pages	
---	---	--	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
4.1	Type Designations	"Type 4X" Marking is declared to be on the product before on the market	P
4.2	Supplemental Markings	Supplemental Marking (watertight/ corrosion resistant) is declared to be used when it is on the market. The required marking shall be added on the product)	P
4.3	Location of Markings	See the Attachment 3	P
4.4	Enclosure Orientation	No Particular Mounting Orientation	N/A
4.5	Conduit Hubs and Closure Plates	No Conduit Hubs and Closure Plates	N/A
4.6	Equipment Openings	No Openings on Unit	N/A
4.7	Drainage Openings	No Drain Openings	N/A

5	DESIGN TESTS	
----------	---------------------	--

5.1	General	See Table 5-1A to 5-1D and 5.1.5 in the General product information	P
5.2	Tests For Protection Against Access to Hazardous Parts	Rated 4X	N/A
5.3	Tests for Protection Against Ingress of Water (Dripping and Light Splashing)	Rated 4X	N/A
5.4	Tests for Protection Against Ingress of Water (Rain)	Rated 4X	N/A
5.5	Tests for Protection Against Ingress of Solid Foreign Objects (Setting Airborne Dust, Lint, Fibers, And Flings)	Non-vented (See clause 5.7)	N/A
5.6	External Icing Test	No external cavities to trap water when mounted in the normal position.	N/A
5.7	Tests for Protection Against Ingress of Water (Hosedown)	No entry of water See the test information	P
5.8	Indoor Corrosion Protection (Rust-Resistance Test (24-Hour Salt Spray Test))	See clause 3.5	N/E
5.9	Outdoor Corrosion Protection	See clause 3.5	N/E
5.10	Corrosion Protection-Type 3X, 3RX, 3SX, 4X Or 6P Enclosures	See clause 3.5	N/E

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(10) / (24) Pages	
---	--	--	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
5.11	Test for Protection Against Ingress of Water (Temporary Submersion)	Rated 4X	N/A
5.12	Test for Protection Against Ingress of Water (Prolonged Submersion)	Rated 4X	N/A
5.13	Oil Exclusion Test	Rated 4X	N/A
5.14	GASKET MATERIAL TESTS	The product itself(including gaskets) was conditioned at 70 °C for 168 hrs according to 5.14.3(Alternate Evaluation) before performing relevant required tests.	P
5.15	Test for Sharpness of Edges	No sharp edges	P

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(11) / (24) Pages	
---	---	---	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict

Test Information

	Hose Down Test : Clause 5.7	P
--	------------------------------------	----------

Description of Test

The enclosure and its external mechanisms were subjected to a stream of water from a hose that has a 25.4 mm (1 in) inside diameter nozzle and delivers at least 240 L (65 gal) per minute.

The nozzle was held from 3.0 to 3.5 m (10 to 12 feet) from the enclosure, and the spray of water was directed at all points of potential water entry such as seams, joints, external operating mechanisms, and such. The nozzle was moved along each test point one time at a uniform rate of 6 mm/sec(1/4 in/sec).

Sample Dimension(Ø 147.51 mm by 401.8 mm)

Test Duration = 130.6 secs

Acceptance conditions:

The enclosure shall be considered to have met the requirements if at the conclusion of the test no water has entered the enclosure

Test Results

Sample No (Model)	Water Flow	Presence of water inside	Result
TNO-4040TN	240 LPM	No	Pass

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(12) / (24) Pages	
---	--	--	--

List of test equipment used:

Instr. Code	Instrument Type	Range Used	Mfr./Model	Calibration Date	
				Last	Due
S3-IP18	25.4mm Nozzle	25.4 mm	CTK/S3-IP18	-	Checked by calliper below before using
S1-SW2	Stop Watch	0.01 s	CASIO/ NONE	2016-03-16	2018-03-16
S1-D09	Steel Measuring Tape	5 m	KOMELON/KMC-74N	2013-06-11	2018-06-11
S3-IP20	Water flow meter	250LPM	Nuri tech/Z-4007	2017-04-14	2018-04-14
S1-D03	DIGITAL VERNIER CALIPER	200 mm	MITUTOYO/200 mm	2017-03-21	2018-03-21



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

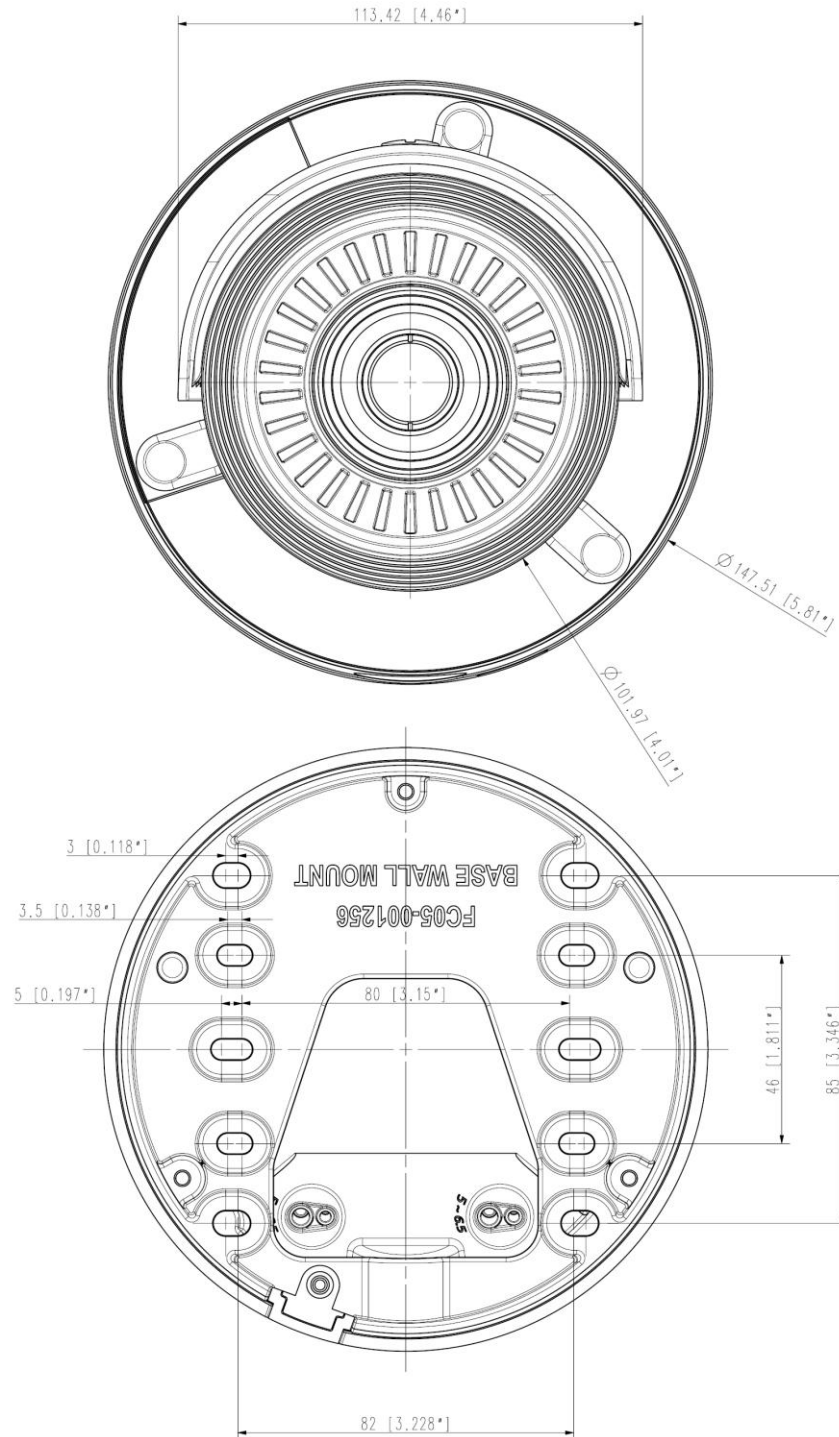
Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(13) / (24) Pages

Attachment 1 – Construction Diagram and installation method





CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

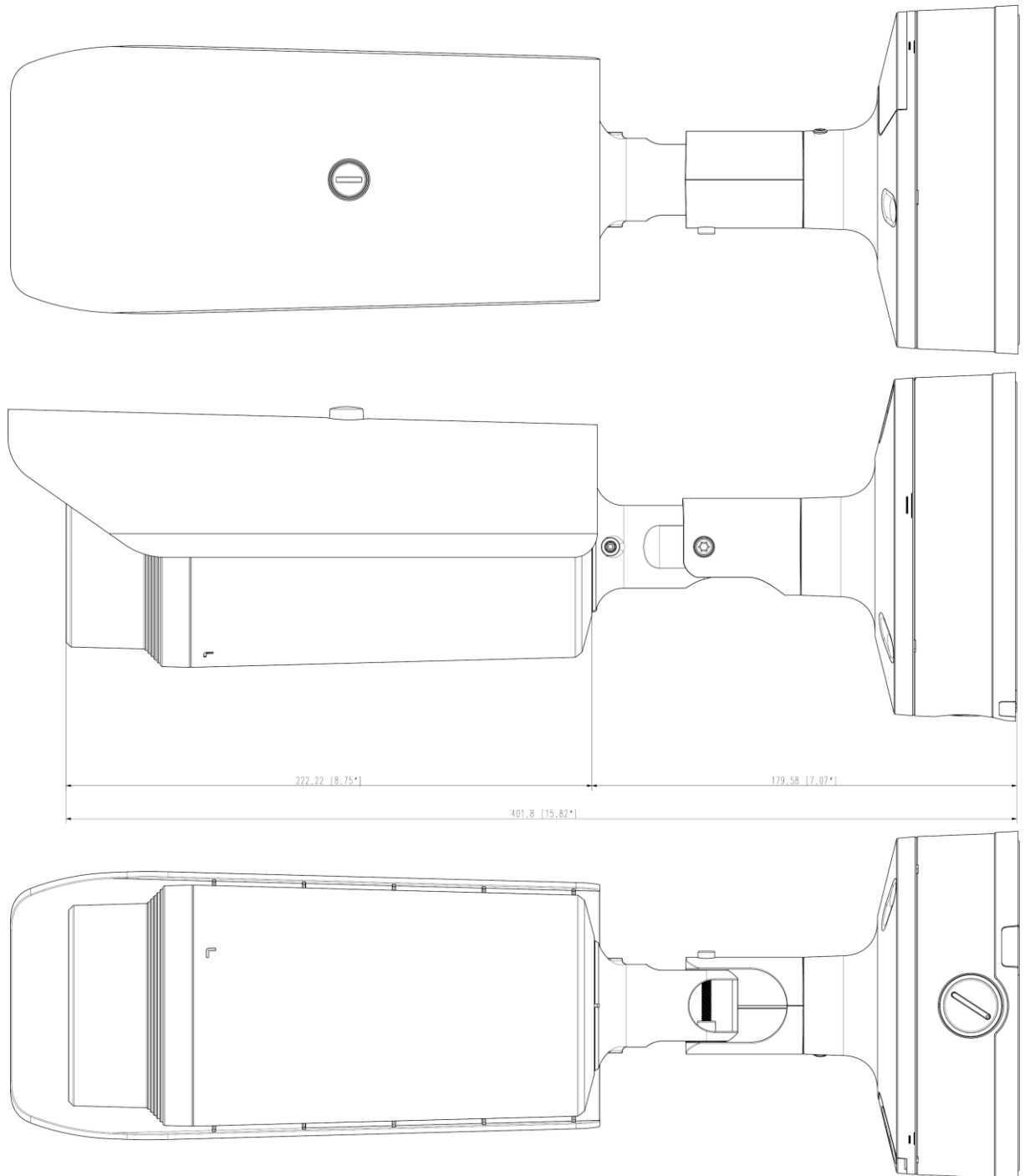
Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(14) / (24) Pages

Attachment 1 – Construction Diagram and installation method





CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(15) / (24) Pages

Attachment 1 – Construction Diagram and installation method



 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(16) / (24) Pages	
---	--	--	--

Attachment 2 – Parts List

No	Code No.	Parts name	Material	Part type
1	FC15-005952A	Cover front for 19&35	ADC12 + Spray	DC
2	FC18-004516A	O-ring_D1 88.57 / D2 2.62	Silicone rubber	RB
3	FC28-002617A	Knob shield sun	ADC12 + Spray	DC
4	FC28-002613A	Shield sun	LG chem. ASA LI936 - V0	MD
5	FC28-002616A	Foot shield sun	Silicone rubber + Double sided tape	RB
6	FC15-005953A	Cover rear	ADC12 + Spray	DC
7	HP07-001180A	Gasket cable	Silicone rubber	RB
8	FC29-002456B	Guide panning	ADC12	DC
9	FC39-001271D	Body panning	ADC12 + Spray	DC
10	FC39-001270C	Body tilt left	ADC12 + Spray	DC
11	FC39-001269C	Body tilt right	ADC12 + Spray	DC
12	FC28-002443B	Door back box button	ADC12 + Spray	DC
13	HP07-001179A	Gasket button	Silicone rubber	RB
14	FC15-005958A	Cover top back box	ADC12 + Spray	DC
15	FC15-005367A	Cover cable gasket	ADC12	DC
16	RM01-003400A	Wire safety	STS304	ETC
17	XXxx-xxxxxxA	PBA micro SD	Complex (Electric parts)	A
18	XXxx-xxxxxxA	PBA Interface	Complex (Electric parts)	A
19	FC15-005954A	Cover interface	Lotte chem. PC NH1035 K2261 - V0	MD
20	HP07-001178A	Gasket back box	Silicone rubber	RB
21	FC09-006670A	Bracket wire	SUS304	PD
22	FC29-008671B	Case bottom BB	ADC12 + Spray	DC
23	MC06-001042A	Bushing cable set	Silicone rubber	RB
24	FC05-001256B	Base wall mount	ADC12 + Spray	DC
25	FC29-008748B	Cap cable hole	Lotte chem. PC NH1035 W92814 - V0	MD
26	FC18-001028A	O-ring_D1 27.5 / D2 2.8	Silicone rubber	RB
27	FC29-003420C	3120V Cap bolt	ADC12 + Spray	DC
28	XXxx-xxxxxxA	Athermalized Lens - 19mm	Ass'y lens	A
29	FC18-004517A	O-ring_D1 36.17 / D2 2.62	Silicone rubber	RB
30	FC18-004518A	O-ring_D1 44.12 / D2 2.62	Silicone rubber	RB
31	XXxx-xxxxxxA	FBPA temp. sensor	Complex (Electric parts)	A
32	RM04-001069A	Tape temp. for holder	3M 9473	TP
33	FC29-009745A	Holder lens	Aluminum 6063 + Anodizing	ETC
34	XXxx-xxxxxxA	Ass'y Shutter	Complex (Electric parts)	A
35	FC29-009744A	Holder sensor	Aluminum 6063	ETC
36	XXxx-xxxxxxA	열상 센서	Complex (Electric parts)	A
37	FC28-000730A	PAD thermal	Thermal conductive silicone	ETC
38	FC29-009746A	Holder push sensor	Aluminum 5052-h32	PD
39	XXxx-xxxxxxA	PBA sensor	Complex (Electric parts)	A
40	XXxx-xxxxxxA	PBA NUC	Complex (Electric parts)	A

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(17) / (24) Pages	
---	--	--	--

Attachment 2 – Parts List

41	FC29-009743A	Holder camera for 19&35	ADC12	DC
42	XXxx-xxxxxxA	PBA power	Complex (Electric parts)	A
43	FC29-009747A	Holder PBA network power	SAMYANG 3500G20 - V0	MD
44	XXxx-xxxxxxA	PBA network	Complex (Electric parts)	A
45	FC28-000556A	PAD thermal	Thermal conductive silicone	ETC
46	EP07-001237A	Heat sink	ADC12	DC
S-1	Z6001055201A	Screw machine	SWCH18A	SC
S-2	FC18-004515A	Screw set	SUS	SC
S-3	Z6003007801A	Screw machine (for 방수)	SWCH18A	SC
S-4	Z6004041101A	Screw set	SUS	SC
S-5	Z6011000601A	Screw machine	SUS	SC
S-6	FC18-003309A	Screw machine	SUS	SC
S-7	Z9642306007	Screw machine (for wire)	SWCH18A	SC
S-8	FC18-003435A	Screw machine	SWCH18A	SC
S-9	Z6003012201A	Screw taptite	SWCH18A	SC

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(18) / (24) Pages	
---	---	--	--

Attachment 2 – Parts List

SolutionPartner



ASA LI936B

Injection Molding Grade

Description

Flame Retardant, Good Weatherability

Application

Bidet housing

Properties	Test Condition	Test Method	Unit	Typical Value
Physical				
Specific Gravity		ASTM D792	-	1.17
Molding Shrinkage (Flow), 3.2mm		ASTM D955	%	0.4~0.7
Melt Flow Rate	220℃/10kg	ASTM D1238	g/10min	30
Mechanical				
Tensile Strength, 3.2mm		ASTM D638		
@ Yield	50mm/min		kg/cm ²	350
Tensile Elongation, 3.2mm		ASTM D638		
@ Yield	50mm/min		%	5
@ Break	50mm/min		%	Min 15
Tensile Modulus, 3.2mm	1mm/min	ASTM D638	kg/cm ²	20,000
Flexural Strength, 6.4mm	15mm/min	ASTM D790	kg/cm ²	550
Flexural Modulus, 6.4mm	15mm/min	ASTM D790	kg/cm ²	18,000
IZOD Impact Strength, 6.4mm		ASTM D256		
(Notched)	23℃		kg·cm/cm	12
	-30℃		kg·cm/cm	5
IZOD Impact Strength, 3.2mm		ASTM D256		
(Notched)	23℃		kg·cm/cm	19
	-30℃		kg·cm/cm	6
Rockwell Hardness	R-Scale	ASTM D785	-	85
Thermal				
Heat Deflection Temperature, 6.4mm		ASTM D648		
(Unannealed)	18.6kg		℃	80
	4.6kg		℃	87
Vicat Softening Temperature		ASTM D1525		
	5kg, 50℃/h		℃	86
	1kg, 120℃/h		℃	
Flammability		UL94		
2.0mm			class	V-0
3.0mm			class	V-0
Relative Temperature Index		UL 746B		
Electrical			℃	50
Mechanical with Impact			℃	50
Mechanical without Impact			℃	50

Note) Typical values are only for material selection purpose, and variation within normal tolerances are for various colors.

Values given should not be interpreted as specification and not be used for part or tool design.

All properties, except melt flow rate are measured on injection moulded specimens and after 48 hours storage at 23℃, 50% relative humidity.

Updated : 22-May-17

The information contained herein, including, but not limited to, data, statements and typical values, are given in good faith. LG Chem makes no warranty or guarantee, expressed or implied, (i) that the result described herein will be obtained under end - use conditions, or (ii) as to the effectiveness or safety of any design incorporating LG Chem materials, products, recommendations or advice. Further, any information contained herein shall not be construed as a part of legally binding offer. Especially, the typical values should be regarded as reference values only and not as binding minimum values. Each user bear full responsibility for making its own determination as to the suitability of LG Chem's materials, products, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating LG Chem material or products will be safe and suitable for use under end - use conditions. The data contained herein can be changed without notice as a result of the quality improvement of the products.

Processing Guide (Injection Molding)



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(19) / (24) Pages

Attachment 2 – Parts List

INFINO

Grade

NH-1035

iq.ul.com

Component - Plastics [\[guide info\]](#)

E115797

Lotte Advanced Materials Co Ltd

56 Gosan-ro, Uiwang-si Gyeonggi-do 437-711 KR

NH-1035(+)

Polycarbonate (PC), "INFINO", furnished as pellets

	Min Thk	Flame			RTI	RTI	RTI
Color	(mm)	Class	HWI	HAI	Elec	Imp	Str
ALL	1.5	V-0	-	-	80	80	80
	2.0-2.7	V-0, 5VB	-	-	80	80	80

Comparative Tracking Index (CTI): -

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

Volume Resistivity (10^x ohm-cm): -

High Volt, Low Current Arc Resis (D495): -

(+) - May be replaced by one, two, or three numbers and/or letter(s)

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1998-08-24

Last Revised: 2008-02-15

© 2016 UL LLC



IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10, IEC 60695-11-20	Class (color)	1.5	V-0 (ALL)
			2.0-2.7	V-0, 5VB (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m ²	-	-
ISO Izod Impact	ISO 180	kJ/m ²	-	-
ISO Charpy Impact	ISO 179-2	kJ/m ²	-	-

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(20) / (24) Pages	
---	--	---	--

Attachment 2 – Parts List



SAMYANG CORPORATION
407 3-Ga Palbok-Dong, Cheonju Cheonbuk 560-200 KR



TRIEX: 3500G-(z)

Polycarbonate (PC), pellets

(z) - Represents any number 20-29 incl.

Flammability	Value	Test Method
Flame Rating		UL 94
1.5 mm, ALL	V-0	IEC 60695-11-10, -20
3.0 mm, ALL	V-0	
6.0 mm, ALL	V-0	
Electrical	Value	Test Method
Hot-wire Ignition (HWI)		UL 746
1.5 mm	PLC 2	
3.0 mm	PLC 1	
6.0 mm	PLC 0	
High Amp Arc Ignition (HAI)		UL 746
1.5 mm	PLC 0	
3.0 mm	PLC 0	
6.0 mm	PLC 0	
Comparative Tracking Index (CTI)	PLC 3	UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 3	UL 746
Arc Resistance	PLC 7	ASTM D495
Thermal	Value	Test Method
RTI Elec		UL 746
1.5 mm	130 °C	
3.0 mm	130 °C	
6.0 mm	130 °C	
RTI Imp		UL 746
1.5 mm	125 °C	
3.0 mm	125 °C	
6.0 mm	125 °C	
RTI Str		UL 746
1.5 mm	130 °C	
3.0 mm	130 °C	
6.0 mm	130 °C	



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

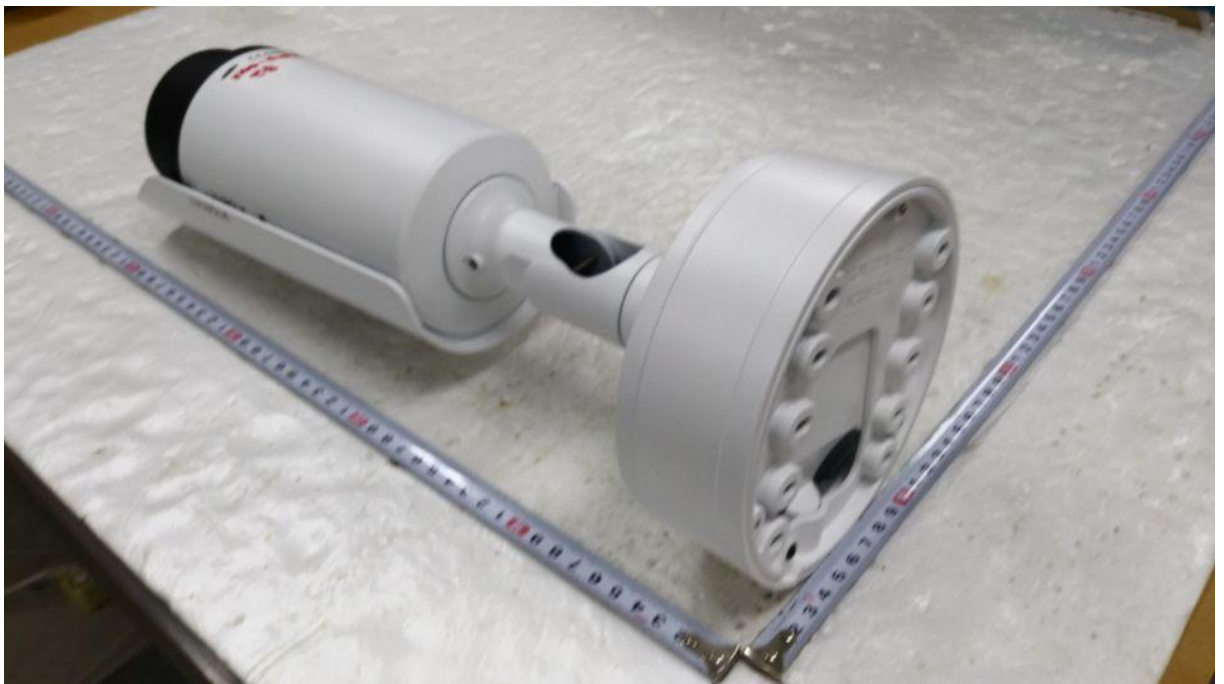
Page(21) / (24) Pages

Attachment 3 – Photographs

<Photo 1 > Test Unit



<Photo 2 > Test Unit





CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(22) / (24) Pages

Attachment 3 – Photographs

<Photo 3 > Hose down test



<Photo 4 > Test Result



 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2018-00528 Page(23) / (24) Pages	
---	--	---	--

Attachment 3 – Photographs

<Photo 5 > Test Result



<Photo 6 > Test Result





CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

Fax: +82-31-624-9501

Report No.:

CTK-2018-00528

Page(24) / (24) Pages

Attachment 3 – Photographs

<Photo 7 > Test Result

