



Report No.: TDCQHZ-WAY-P24060001

Reliability Test Report

Applicant name: Kun Hung Electric Co., Ltd.

Address: 183, Hancheon-ro, Dongdaemun-gu, Seoul,02534 Rep. of Korea

Testing Laboratory: BV CPS ADT Korea Ltd.

Address: 49, Heungan-daero, Dongan-gu, Anyang-si, Gyeonggi-do, Korea

Date of receipt: 2024-06-03

Purpose of the test report: For quality control

Product: Switch-disconnector

Model name: KMP-40A

Serial No: -

Derivative model name: -

Test standard / method: KS C IEC 60529 / IP65

Period of testing: From 03-06-2024 to 05-06-2024

Test environment.....: Temperature : (15 - 35) °C, Humidity : (30 - 75) % R.H.

Test result.....: See the test result

- The test result of this test report only limited in the sample(s) provided by the applicant.
- This test report shall be used only within the purpose of its defined usage and also shall not be used for public relation, advertisement and suit.
- It is not allowed to copy this report even partly without the permission of testing Laboratory.
- This report shall not be used by the applicant to claim product endorsement by any agency.
- This test report is the result of testing method the applicant instructed.

Tested by (Engineer)

Name : Dokyung THAK

(Signature)

Approved by (Technical Manager)

Name : Jinchul HWANG

(Signature)

2024-06-05

Bureau Veritas CPS ADT Korea Ltd.





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1. Test Result

1.1 Dust-proof Test

Test subject	Test requirement		Remark	
First characteristic numeral	Protection against access to hazardous parts	<input type="checkbox"/> IP0X	Not-protected.	-
		<input type="checkbox"/> IP1X	The sphere of 50 mm Ø shall have adequate clearance from hazardous parts. (50 N applied)	-
		<input type="checkbox"/> IP2X	The jointed test finger of 12 mm Ø and 80 mm length shall have adequate clearance from hazardous parts. (10 N applied)	-
		<input type="checkbox"/> IP3X	The test rod of 2.5 mm Ø shall not penetrate and adequate clearance shall be kept. (3 N applied)	-
		<input type="checkbox"/> IP4X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied)	-
		<input type="checkbox"/> IP5X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied)	-
		<input checked="" type="checkbox"/> IP6X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied)	Does not pass
	Protection against solid foreign objects	<input type="checkbox"/> IP0X	Non-protected	-
		<input type="checkbox"/> IP1X	The sphere of 50 mm Ø shall not penetrate and adequate clearance shall be kept. (50 N applied) 1)	-
		<input type="checkbox"/> IP2X	The sphere of 12.5 mm Ø shall not fully penetrate (30 N applied) 1)	-
		<input type="checkbox"/> IP3X	The test rod of 2.5 mm Ø shall not penetrate and adequate clearance shall be kept. (3 N applied) 1)	-
		<input type="checkbox"/> IP4X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied) 1)	-
		<input type="checkbox"/> IP5X	Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety.	-
		<input checked="" type="checkbox"/> IP6X	No ingress of dust	- Does not pass
Supplementary information: ¹⁾ The full diameter of the object probe shall not pass through an opening of the enclosure.				





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1.2 Water-proof Test

Test subject	Test requirement		Remark	
Second characteristic numeral	Degree of protection against water	<input type="checkbox"/> IPX0	No-protected	-
		<input type="checkbox"/> IPX1	Protected against vertically falling water drops. Test conditions: Flow rate: 1 mm/min, Rotation speed: 1 r/min Eccentricity (distance between turntable axis and specimen axis): Approximately 100 mm Duration of test: 10 min.	-
		<input type="checkbox"/> IPX2	Protected against vertically falling water drops when enclosure tilted up to 15°. Test conditions: Flow rate: 3 mm/min. Duration of test: 10 min. (2.5 min. in each of four fixed positions of tilt)	-
		<input type="checkbox"/> IPX3	Protected against spraying water. Test conditions: <input type="checkbox"/> Oscillating tube Spray $\pm 60^\circ$ from vertical, distance max. 200 mm, Flow rate: 0.07 L/min. (per hole multiplied by number of holes). Duration of test: 10 min. <input type="checkbox"/> Spray nozzle Spray $\pm 60^\circ$ from vertical. Flow rate : 10 L/min, Water pressure: (50 – 150) kPa, Duration of test: Enclosure surface area shall be 1 min per 1 m ² at least 5 min.	-
		<input type="checkbox"/> IPX4	Protected against spraying water. Test conditions: <input type="checkbox"/> Oscillating tube Spray $\pm 180^\circ$ from vertical, distance max. 200 mm, Flow rate: 0.07 L/min. (per hole multiplied by number of holes) Duration of test: 10 min. <input type="checkbox"/> Tube Radius: 200 mm <input type="checkbox"/> Tube Radius: 400 mm <input type="checkbox"/> Tube Radius: 800 mm <input type="checkbox"/> Spray nozzle Spray $\pm 180^\circ$ from vertical. Flow rate : 10 L/min, Water pressure : (50 – 150) kPa, Duration of test : Enclosure surface area shall be 1 min per 1 m ² at least 5 min.	-
		<input checked="" type="checkbox"/> IPX5	Protected against water jets. Test conditions: Diameter of the nozzle : 6.3 mm / delivery rate: 12.5 L/min.	Does not penetrate





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			Core of the substantial stream: Circle of approximately 40 mm diameter at 2.5 m distance from nozzle. Distance from nozzle to enclosure surface: between 2.5 m and 3 m, Duration of test : Enclosure surface area shall be 1 min per 1 m ² at least 3 min.	
<input type="checkbox"/>	IPX6	Protected against powerful water jets. Test conditions: Internal diameter of the nozzle: 12.5 mm / Delivery rate: 100 L/min. Core of the substantial stream: Circle of approximately 120 mm diameter at 2.5 m distance from nozzle distance from nozzle to enclosure surface: between 2.5 m and 3 m, Duration of test : Enclosure surface area shall be 1 min per 1 m ² at least 3 min.		-
<input type="checkbox"/>	IPX7	Protected against the effects of temporary immersion in water. Test conditions: The lowest point of enclosures with a height less than 850 mm is located 1 000 mm below the surface of the water. The highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water. Duration of test : 30 min.		-
<input type="checkbox"/>	IPX8	Protected against the effects of continuous immersion in water. Test conditions: The test conditions are subject to agreement between manufacturer and user, but they shall be more severe than those prescribed in numeral 7 and they shall take account of the condition that the enclosure will be continuously immersed in actual use. Distance from the upper end of the enclosure surface to the surface of the water : ____ m Duration of test: ____ min.		-
<input type="checkbox"/>	IPX9	Protected against high pressure and temperature water jets Flow rate: (15 ± 1) L/min. <input type="checkbox"/> Turn Table speed (5 ± 1) r/min Spray at 0°, 30°, 60°, 90° Duration of test: 30 s per position <input type="checkbox"/> Test of large enclosure as per intended use. Spray from all practical directions distance:(175 ± 25) mm, Duration of test: 1 min/m ² at least 3 min.		-
Supplementary information: -				

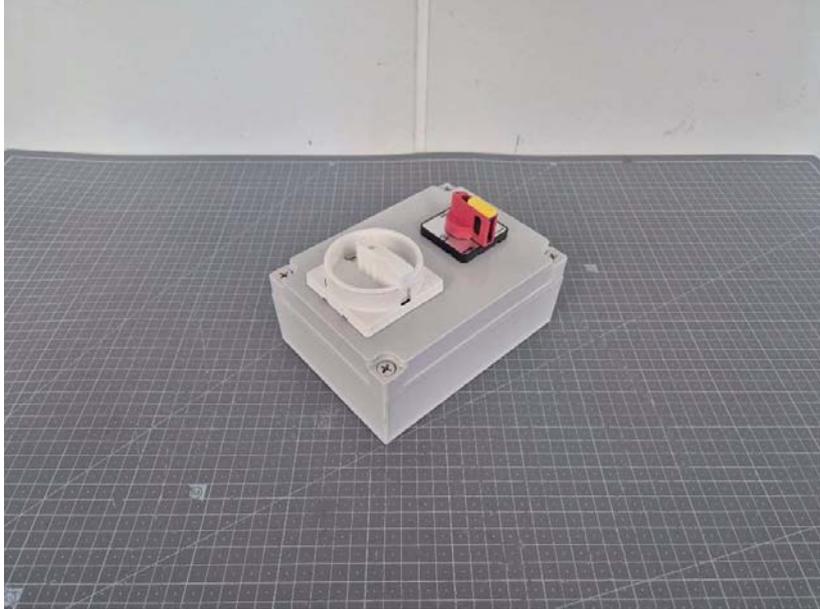




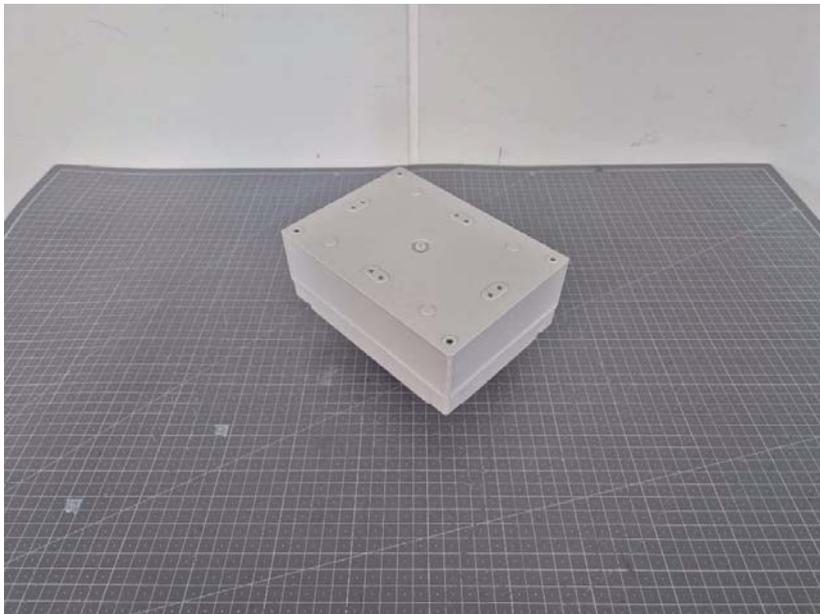
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2. Product photographs

< Front View >



< Rear View >





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3. Test Photographs

3.1 First characteristic numeral test photographs

< During Test >



< After Test >





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3.2 Second characteristic numeral test photographs

< Before Test >



< During Test >





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4. Photographs after test

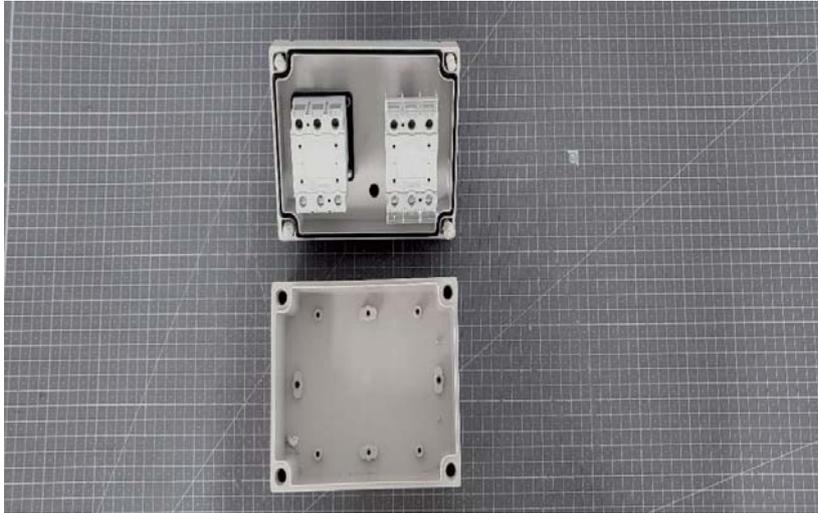
4.1 First characteristic numeral (Protection against access to hazardous parts)



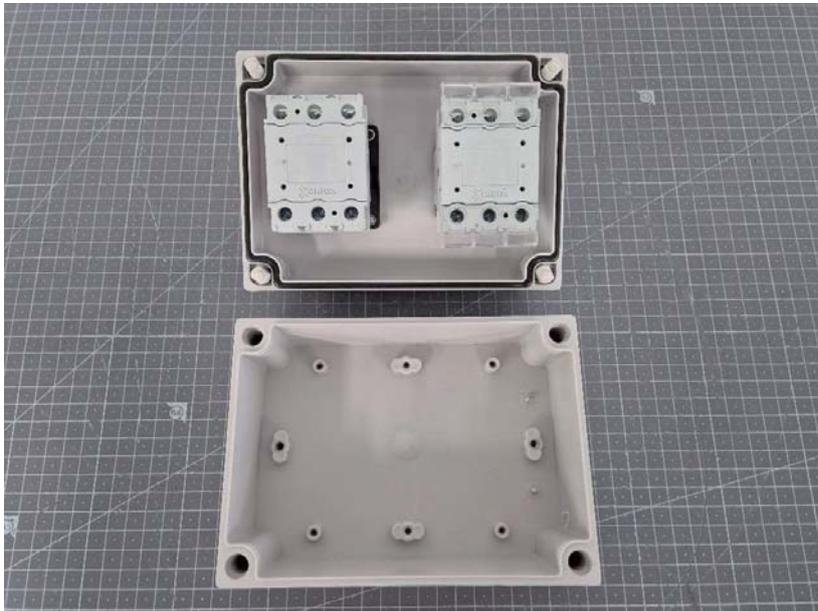


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4.2 First characteristic numeral (External dust)



4.3 Second characteristic numeral



- End of Test report-

