

# TEST REPORT

Report No.: HC90197/2020  
 Page: 1 of 6  
 Date: September 30, 2020

IO-POWER TECHNOLOGY CO., LTD.  
 1F., NO. 100, JINZHU RD., NORTH DIST.,  
 HSINCHU CITY, TAIWAN

The following merchandise was submitted and identified by the vendor as:

Product Description: IP69 Waterproof and Corrosion-resistant and Wind-resistant and Anti-interference Aluminum Alloy Die-casting case  
 IOP-WMDC-2P2L6N6N-D (Double Under Cover) EV1

Style/ Item No.: IOP-WMDC-2P2L6N6N-D / No.1, No.2

Manufacturer/Vendor: IO-Power Technology Co., Ltd.

Country of Origin: Taiwan

Quantity: Total 2 pieces

Testing Period: Sep. 25, 2020 to Sep. 28, 2020

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required:

Test for Degrees of Protection Provided by Enclosures (IEC 60529 Edition 2.2: 2013)

IP Code	IP69
<b>First characteristic numeral</b>	Degrees of protection against access to hazardous parts and against solid foreign objects
<b>Second characteristic numeral</b>	Degrees of protection against ingress of water

Test Results:

Conclusion
Submittals sample(s) comply with the requirement and acceptance conditions of IEC 60529 Edition 2.2: 2013 Degrees of Protection Provided by Enclosures--IP69 The detailed description of test result, please see attached sheet(s).

Signed for and on behalf of  
**SGS TAIWAN Ltd.**

*Ivan Wang*

Ivan Wang  
 Team Leader

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# TEST REPORT

Report No.: HC90197/2020

Page: 2 of 6

## Test for Degrees of Protection Provided by Enclosures:

### Test Equipment:

Name	Brand	Model	Serial No.
1.0 mm Test Wire Probe	ED&D	TRP-02	L12470907
Digital Force Gauge	ALGOL	HF-50	HF-106764
Dust Tester	T-MACHINE	TMJ-9723S	T-23-110708
Water Splash Test Chamber	T-MACHINE	TMJ-9710A	T-10-120304

### Lab Environmental Conditions:

Ambient temperature: (15 ~ 35)°C

Ambient humidity: (25 ~ 75) % RH

### Test Location:

No.33, Wu Chyuan Road, New Taipei Industrial Park, WuKu District, New Taipei City, Taiwan

### Test Method/ Specification:

Test method: IEC 60529 Edition 2.2: 2013--IP69

#### **1. Test for protection against access to hazardous parts:**

Test method: The test wire with 1.0 mm in diameter and 100 mm long is pushed against or inserted through any openings of the enclosure with designated force. Examine whether the test wire touches the hazardous live parts inside the enclosure or not.

Test force: 1 N±10 %

#### **2. Test for protection against solid foreign objects:**

Test method: Dust test

Sample condition: Non-Operating

Category of enclosure : Category 1

Type of dust: Talcum powder

The amount of dust: 2 kg per cubic meter of the chamber volume

The maximum depression: < 20 mbar

Test duration: 8 hours

- Examine the protection against ingress dust of specimen(s) after this test.

Test Method/ Specification--Continued:

### **3. Test for protection against water:**

Sample condition:	<u>Non-Operating</u>
Water temperature:	<u>(80 ± 5) °C</u>
Water pressure:	<u>(8 ~ 10) MPa</u>
Table rotation speed:	<u>(5 ± 1) rpm</u>
Water flow rate:	<u>(14 ~ 16) L/min</u>
Reference point:	<u>0°, 30°, 60°, 90°</u>
Test duration:	<u>30 seconds/ position</u>

- Examine the protection against ingress water of specimen after this test.

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# TEST REPORT

Report No.: HC90197/2020

Page: 4 of 6

**Specimen:**

Style/ Item No.: IOP-WMDC-2P2L6N6N-D / No.1, No.2

Quantity: Total 2 pieces

**Test Result:**

A. Degrees of protection against access to hazardous parts and against solid foreign objects (IP6X)

A-1 Test for protection against access to hazardous parts (IP6X)

Test Result		
Check Item	Style/ Item No.	
	IOP-WMDC-2P2L6N6N-D / No.1	
1	Does the test wire penetrate any openings of the enclosure?	No
2	(followed check item 1) If the test wire penetrates any openings of the enclosure, does the test wire touch any hazardous live parts or any hazardous mechanical parts?	N/A
3	(followed check item 2) Does adequate clearance be kept between the test wire and hazardous live parts or hazardous mechanical parts?	N/A
Note 1: N/A means "Not Applicable".		
Note 2: The check items in this test report for inspecting the degree of protection provided by enclosures are reference to the requirements specified in IEC 60529 Edition 2.2: 2013 and in accordance with the acceptance conditions specified by client.		

A-2 Test for protection against solid foreign objects (IP6X)

Test Result		
Check Item	Style/ Item No.	
	IOP-WMDC-2P2L6N6N-D / No.1	
1	Does any dust deposit inside the enclosure?	No
Note 1: N/A means "Not Applicable".		
Note 2: The check items in this test report for inspecting the degree of protection provided by enclosures are reference to the requirements specified in IEC 60529 Edition 2.2: 2013 and in accordance with the acceptance conditions specified by client.		

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# TEST REPORT

Report No.: HC90197/2020

Page: 5 of 6

Test Result--Continued:

B. Degree of protection against ingress of water (IPX9)


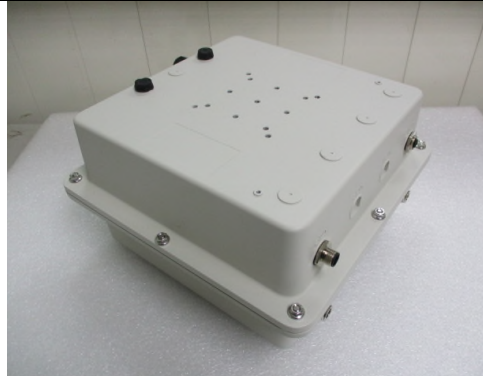

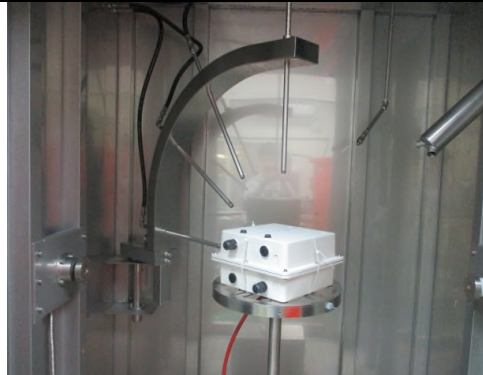
Test Result		Style/ Item No.
Check Item		IOP-WMDC-2P2L6N6N-D / No.2
1	Does any water enter the enclosure?	No
2	(followed check item 1) If any water has entered, does the water accumulate near the cable end or live parts?	N/A
2.1	(followed check item 2) Does the water be sufficient to interfere with the correct operation of the equipment or impair safety?	N/A
2.2	(followed check item 2.1) Does the water deposit on insulation parts where it could lead to tracking along the creepage distances?	N/A
2.3	(followed check item 2.2) Does the water reach live parts or windings not designed to operate when wet?	N/A

Note 1: N/A means "Not Applicable".  
 Note 2: The check items in this test report for inspecting the degree of protection provided by enclosures are reference to the requirements specified in IEC 60529 Edition 2.2: 2013 and in accordance with the acceptance conditions specified by client.

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Test Photos:

	
<p>1. Appearance of specimen</p>	<p>2. Appearance of specimen</p>
	
<p>3. Test for protection against solid foreign objects (Dust test)</p>	<p>4. Test for protection against water</p>

— — — The End of Test Report — — —

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