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TESTING
CNAS L0730



SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

TEST REPORT

No. XNZ2019498

Name of Sample: ADL

Model / Type: ADL3000-E
3 × 220/380V 3 × 10(80)A 50Hz

Sample Number: SHZ19071680017, SHZ19071680018

Applicant: Acrel Co., Ltd.

Manufacturer: Jiangsu Acrel Electric MFG. Co., Ltd.

Test Type: Commission

Date Issued: 2019-12-27



DIRECTIONS

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(1) Basic Information

Name of Sample	ADL	Trade Mark	---
Model / Type	ADL3000-E 3 × 220/380V 3 × 10(80)A 50Hz	Class	Class 0.5S (Active) Class 2 (Reactive)
Sample No.	SHZ19071680017, SHZ19071680018	Sample quantity	2
Applicant	Acrel Co., Ltd.		
Applicant Address	No.5, Dongmeng Road, Nanzha Street, Jiangyin City, Jiangsu Province, China		
Manufacturer	Jiangsu Acrel Electric MFG. Co., Ltd.		
Test Site	Environment and EMC Lab of Dongguan Branch		
Test Conditions	Temperature: (22~23) °C Humidity: (50~60) %RH		
Date Received	Dec.23, 2019	Commission No.	WT20191547
Test Date	Dec.23, 2019 to Dec.27, 2019	Test Type	Commission
Test Item	1. Limits of error due to variation of the current 2. Protection against penetration of dust and water		
Test Standard	IEC 62053-23 (Edition 1.0): 2003 Electricity metering equipment(a.c.) – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3) IEC 62052-11 (Edition 1.0): 2003 Electricity metering equipment(AC) – General requirements, tests and tests conditions – Part 11: Metering equipment		
Conclusion	PASS		
Remarks	---		


Tested by:



Checked by:



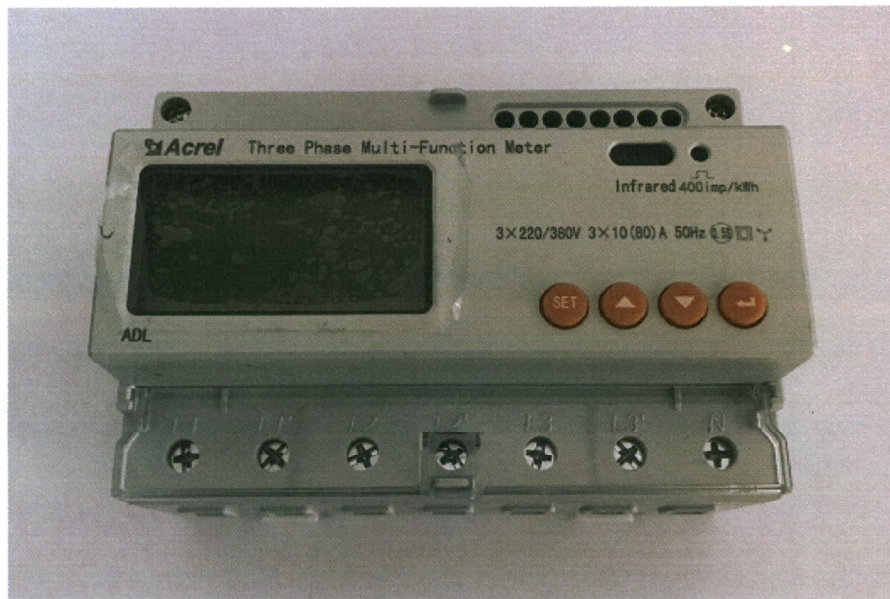
Approved by:



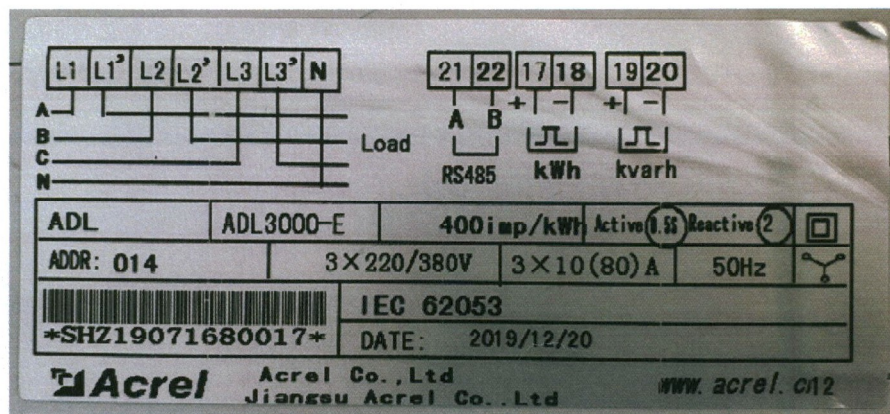
(2) Test Results Summary

No.	Test Item	Sample No.	Pass (P)	Fail (F)
1	Limits of error due to variation of the current	SHZ19071680017	P	
2	Protection against penetration of dust and water	SHZ19071680018	P	

(3) Sample Photo



General picture of sample appearance



General picture of sample nameplates

(4) Main Metrology Instrument and Test Equipment

No.	Name of Instrument/Model	Serial No.	Certificate No. /Due Date	Technical Characteristic
1	Three phase watt-hour meter tester bench/ST6300	201612202	DBN201900937 /2020-10-21	Class 0.05
2	Impulse voltage generator /LSG-255G	052119001J	WWM201900435 /2020-05-25	Pulse voltage: $U_{rel}=2.0\%$ Front time: $U_{rel}=4\%$ Duration time: $U_{rel}=3.0\%$
3	Withstanding voltage tester/7122	1240841	DYQ201900620 /2020-02-11	Class 5
4	Rain simulation chamber/LX-010	080823	HCY201931099 /2020-10-23	(1~3mm)/min
5	Sand dust chamber/SC-500	080821	HCY201931098 /2020-10-23	$U=0.1s, k=2$ Talcum powder: $2kg/m^3$

(5) Test Result

1 Limits of error due to variation of the current

Technical requirement: See IEC 62053-23:2003 Table 6, Class 2

Test method:

To determine relative error under different current by comparing with the reference standard.

Test equipment: ST6300

Test result:

For reactive energy, Balanced ($U_n=220V, I_{max}=80A, I_b=10A$)

sin ϕ	Current	Error (%)	Limit of Error (%)
		SHZ19071680017	Class 2
1	I_{max}	-0,03	$\pm 2,0$
	I_b	-0,03	$\pm 2,0$
	$0,1I_b$	-0,04	$\pm 2,0$
	$0,05I_b$	-0,06	$\pm 2,5$
0,5L	I_{max}	+0,02	$\pm 2,0$
	I_b	-0,07	$\pm 2,0$
	$0,2I_b$	-0,10	$\pm 2,0$
	$0,1I_b$	-0,15	$\pm 2,5$
0,25L	I_{max}	+0,07	$\pm 2,5$

	I_b	-0,12	$\pm 2,5$
	$0,2I_b$	-0,20	$\pm 2,5$

For reactive energy, Unbalanced A($U_n=220V, I_{max}=80A, I_b=10A$)

sin ϕ	Current	Error (%)	Limit of Error (%)
		SHZ19071680017	Class 2
1	I_{max}	-0,01	$\pm 3,0$
	I_b	-0,02	$\pm 3,0$
	$0,1I_b$	-0,05	$\pm 3,0$
0,5L	I_{max}	+0,01	$\pm 3,0$
	I_b	-0,07	$\pm 3,0$
	$0,2I_b$	-0,12	$\pm 3,0$

For reactive energy, Unbalanced B($U_n=220V, I_{max}=80A, I_b=10A$)

sin ϕ	Current	Error (%)	Limit of Error (%)
		SHZ19071680017	Class 2
1	I_{max}	-0,01	$\pm 3,0$
	I_b	-0,02	$\pm 3,0$
	$0,1I_b$	-0,04	$\pm 3,0$
0,5L	I_{max}	+0,02	$\pm 3,0$
	I_b	-0,07	$\pm 3,0$
	$0,2I_b$	-0,11	$\pm 3,0$

For reactive energy, Unbalanced C($U_n=220V, I_{max}=80A, I_b=10A$)

sin ϕ	Current	Error (%)	Limit of Error (%)
		SHZ19071680017	Class 2
1	I_{max}	-0,03	$\pm 3,0$
	I_b	-0,03	$\pm 3,0$
	$0,1I_b$	-0,02	$\pm 3,0$
0,5L	I_{max}	+0,05	$\pm 3,0$
	I_b	-0,04	$\pm 3,0$
	$0,2I_b$	-0,03	$\pm 3,0$

Conclusion: Pass

2 Protection against penetration of dust and water

Technical requirement:

The meter shall conform to the degree of protection given in IEC 60529.

Indoor meter: IP51, but without suction in the meter

Any ingress of dust or water shall be only in a quantity not impairing the operation of the meter, and its insulation test.

Test Method:

The tests shall be carried out according to IEC 60529, under the following conditions:

a) Protection against penetration of dust

- according to the request of the client, Place the meter in the analog cabinet;
- meter in non-operating condition and mounted on an artificial wall;
- the test should be conducted with sample lengths of cable (exposed ends sealed) of the types specified by the manufacturer and terminal cover in place;
- for indoor meters only, the same atmospheric pressure is maintained inside the meter as outside (neither under- nor over-pressure);
- first characteristic digit: 5 (IP5X)

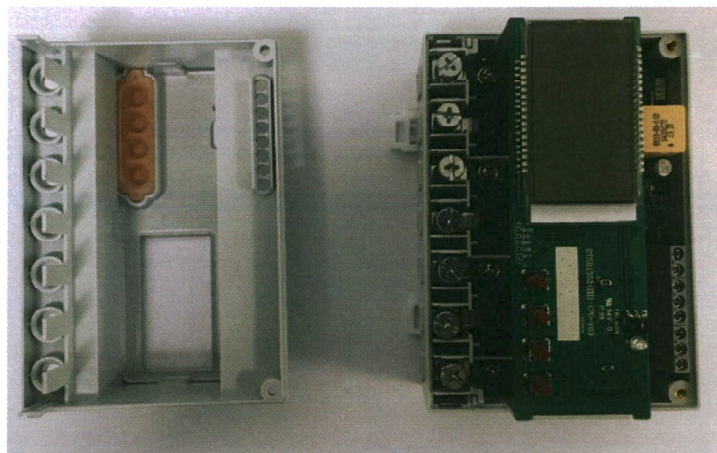
After the test, an insulation test for the meter shall be carried out according to IEC 62052-11:2003 item 7.3

b) Protection against penetration of water

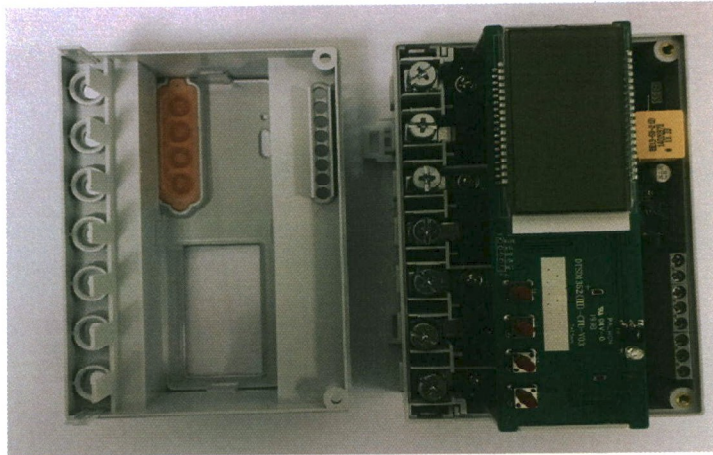
- according to the request of the client, Place the meter in the analog cabinet;
- meter in non-operating condition and mounted on an artificial wall;
- second characteristic digit: 1 (IPX1) for indoor meters;

After the test, an insulation test for the meter shall be carried out according to IEC 62052-11:2003 item 7.3

Test picture:



Protection against penetration of dust



Protection against penetration of water

Test equipment: LX-010, SC-500, LSG-255G, 7122

Test result:

Sample No.	Test result
SHZ19071680018	The ingress of dust or water does not damage the operation of the meter, and its insulation test.

Conclusion: Pass

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