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检测
TESTING
CNAS L0130

检 测 报 告

TEST REPORT

报告编号：J24-578-WT★
Report No.

委 托 单 位：Shanghai Analog & Digital Instrument Co., Ltd
Customer

样 品 名 称：Temperature Transmitter
Name of Sample(s)

型 号 / 规 格：THE310-A0NN
Model/Specification

颁 发 日 期：July 4, 2025
Issue Date

上海仪器仪表自控系统检验测试所有限公司
Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd.

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Approval Page

Customer	Shanghai Analog & Digital Instrument Co., Ltd						
Address	215, Building 5, No.1101 Huyi Highway, Jiading District, Shanghai, China						
Nominal Manufacturer	Shanghai Analog & Digital Instrument Co., Ltd						
Name of Sample(s)	Temperature Transmitter						
Model/Spec	THE310-A0NN						
Serial No. of Sample(s)	03102400120053、03102400120054						
Method of Getting Sample(s)	☑ Delivered by Customer ☐ Sampled	Sampling Procedure	/				
Date of Getting Sample(s)	2024.11.29	Quantity of Sample(s)	2 units				
Test Item(s)	Measurement Error, Insulation Resistance, Insulation Strength, Ambient Temperature Influence, Electrical Fast Pulse Group Immunity, Surge Immunity, Conductivity Test, Industrial Frequency Magnetic Field Immunity, Mechanical Vibration, Electrostatic Discharge, RF Electromagnetic Field Immunity						
Subcontract	☑ No ☐ Yes						
Item(s) Subcontracted	/	Subcontractor	/				
Test Standard(s)/ Specification	ADSTD 1013-2024 Outline of ultra-low temperature test GB/T 18271.2-2017 "General performance evaluation methods and procedures for process measuring and control devices Part 2: Tests under reference conditions" GB/T 18271.3-2017 General performance evaluation methods and procedures for process measurement and control devices Part 3: Tests on the influence of influence quantities GB/T 17626.2-2018 Electromagnetic compatibility test and measurement techniques Electrostatic discharge immunity test GB/T 17626.3-2016 Electromagnetic compatibility test and measurement techniques Radiofrequency electromagnetic field radiation immunity test GB/T 17626.4-2018 Electromagnetic compatibility test and measurement techniques Electrical fast transient pulse group immunity test GB/T 17626.5-2019 Electromagnetic compatibility test and measurement techniques Surge (shock) immunity test GB/T 17626.6-2017 Electromagnetic compatibility test and measurement techniques Conducted nuisance immunity test for RF field induction GB/T 17626.8-2006 Electromagnetic compatibility test and measurement techniques Immunity test for magnetic field induced by radio frequency GB/T 2423.10-2008 Environmental test for electrical and electronic products Part 2: Test methods Test Fc: Vibration (sine)						
Criteria(s) for Conformity	ADSTD 1013-2024 Outline of ultra-low temperature test						
Date of Testing	2024.12.31 to 2025.01.22						
Conclusion	All tested items meet the technical requirements of ADSTD1013-2024 "Ultra-low temperature test outline", Pass.						
*Prepared by	Chen Shanshan	Sign	Chen Shanshan	*Project Manager	Ding Jun	Sign	Ding Jun
*Reviewed by	Jiang Peilei	Sign	Jiang Pei Lei	*Approved by	Yao Zhihong	Sign	Yao Zhihong

(*Stamp*)

Relevant Information

1. Description of Sample(s)

Model: THE310-A0NN；Numbering: 03102400120053；Pt100 platinum resistance input；Measuring range: (0~200)°C；

Model: THE310-A0NN；Numbering: 03102400120054；Type K thermocouple input；Measuring range: (0~1000)°C.

2. Location(s) of Test

Room 219, Building 8 & 1F, Building 15 & 1F, Building 46 & 1F, Building 50, No.103, Caobao Road, Xuhui District, Shanghai, China

Vibration Laboratory, 1F, Building 3, No.135, Yanzhan Road, Songjiang District, Shanghai, China

3. Environmental Conditions of Test

Temperature: (17.2~23.3)℃ Relative Humidity: (34~57) % Others: *ATM* (102.9~103.0) kPa

4. Main Test Apparatus

No.	Name of Test Apparatus	Model	Serial No.	Expiry Date
1	resistance box	HARS-X-10-001	SIPAI/T-J05099	2025-10-28
2	Multi-function Calibrator	MC6	SIPAI/T-J02084	2025-07-23
3	High Insulation Resistance Measuring Instrument	ZC-90G	SIPA I/T-J05168	2026-11-05
4	Withstand Voltage Tester	ZHZ8D	SIPAI/T-J05179	2025-08-21
5	High and low temperature alternating humidity and heat test chamber	PHV1710-DU	SIPAI/T-J09051	2025-10-29
6	Vibration Controller	RL-C21	SIPAI/T-J10062	2025-06-07
7	Vibration Controller	RL-C21	SIPAI/T-J10063	2025-06-07
8	Electromagnetic vibration test system	DC-3200-36	SIPAI/T-J10215	2025-12-13
9	Electromagnetic vibration test system	DC-3200-36/SV-0808	SIPAI/T-J10216	2025-12-13
10	3-meter method improved semi-electrical wave darkroom	07'×08'-4	SIPAI/T-J07001	2025-08-26
11	signal generator	SMC100A	SIPAI/T-J07122	2025-11-24
12	power meter	NRP2	SIPAI/T-J07124	2026-11-07
13	Electrostatic Discharge Generator	ESD-203B	SIPAI/T-J07185	2026-03-10
14	External magnetic field test set	GSH-205A	SIPAI/T-J07039	2025-11-24
15	32A coupling/decoupling network for 2-wire power line testing	CDN-M2N/32A	SIPAI/T-J07086	2025-05-03

16	Conducted Immunity Test System	NSG4070B-80	SIPAI/T-J07153	2025-11-24
17	Ultra-compact Conducted Immunity Signal Simulator	UCS 500N5 EFT/5-VCS/5	SIPAI/T-J07072	2025-10-18

5. Test Results and Conclusion

Please see Page 4 to Page 6

6. Client Witness

No☑ Yes☐ Witnessed by_____ Organization:_____

7. Additional Information

ADSTD1013-2024 “Ultra-low temperature test outline” in the test basis of this report is not within the scope of CNAS accreditation, ADSTD1013-2024 “Ultra-low temperature test outline” of all the test items of the test method in the following CNAS accreditation within the scope of the standard:

GB/T 18271.2-2017 General performance evaluation methods and procedures for process measurement and control devices Part 2: Tests under reference conditions

GB/T 18271.3-2017 “General performance evaluation methods and procedures for process measurement and control devices Part 3: Tests on the influence of influence quantities”.

GB/T 17626.2-2018 Electromagnetic compatibility test and measurement techniques Electrostatic discharge immunity test

GB/T 17626.3-2016 Electromagnetic compatibility test and measurement techniques Radiofrequency electromagnetic field radiation immunity test

GB／T 17626.4-2018 Electromagnetic compatibility test and measurement techniques Electrical fast transient pulse group immunity test

GB／T 17626.5-2019 Electromagnetic compatibility test and measurement techniques Surge (shock) immunity test

GB/T 17626.6-2017 Electromagnetic compatibility test and measurement techniques Conducted nuisance immunity test for RF field induction

GB/T 17626.8-2006 Electromagnetic compatibility test and measurement techniques Immunity test for magnetic field induced by radio frequency

GB/T 2423.10-2008 Environmental test for electrical and electronic products Part 2: Test methods Test Fc: Vibration (sine)

The report numbered J24-578-WT★ replaces the report numbered J24-578-WT. The original report J24-578-WT is invalid (it remains valid in special circumstances). The release date of the original report is April 07, 2025.

Reason for this revision: To clarify that the test results of the Ambient Temperature Influence test refer to the influence quantity within a certain temperature range.

Content of this revision: Add the description "/10℃" to the test results of the Ambient Temperature Influence test.

Test Results and Conclusion

No.	Test Item(s)	Test Standard(s)/ Clause	Test Method(s)/ Condition	Requirements	Serial No.	Test Results/ Max. Limit	Conclusion	Remark
1	Measurement Error	ADSTD 1013-2024 Outline of Ultra-low Temperature Test / IV/1, GB/T 18271.2-2017/4.1.7.2	Measurement errors at 0%, 25%, 50%, 75%, and 100% of the range and the return of the positive/negative stroke at 50% of the range were tested for RTD and thermocouple configurations, respectively.	Measurement error does not exceed ±0.1%, the hysteresis does not exceed ±0.05%.	0310240 0120053 0310240 0120054	measurement error: 0.04% hysteresis: 0.00% measurement error: 0.04% hysteresis: 0.03%	Pass	/
2	Electrical Insulation Resistance	ADSTD1013-2024 Outline of Ultra-low Temperature Test / IV/5/1), GB/T 18271.2-2017/6.3.2, 6.3.3	The test shall be carried out on the test device without power supply, and the DC test voltage shall be applied sequentially between the short-circuited input, output or power supply terminals and the grounded enclosure. The nominal DC test voltage shall be 500 V. After applying the specified test voltage for at least 30 s, the insulation resistance value shall be included in the test report.	a. Input terminal short to the shell is not less than 20MΩ; b. Power terminal short to the shell is not less than 50MΩ; c. Input terminal and power terminal is not less than 50MΩ.	0310240 0120053 0310240 0120054	all＞1.00×10^6	Pass	/
3	Dielectric Strength	ADSTD1013-2024 Outline of Ultra-low Temperature Test / IV/5/2), GB/T 18271.2-2017/6.3.3	Under the condition that the leakage current is set to 2mA, the test voltage is: a) not less than 1500V AC between the power supply terminals and the chassis; b) not less than 500V AC between the input and output terminals and the chassis.	Subjected to the above test voltage for 1min, the leakage current is not more than 2mA insulation strength test, there should be no breakdown and flying arc during the test.	0310240 0120053 0310240 0120054	No breakdown or flying arc occurred during the test, and the leakage current is less than 2mA.	Pass	/
4	Ambient Temperature Effects	ADSTD 1013-2024 Outline of Ultra-low Temperature Test / IV/2, GB/T 18271.3-2017/5	Respectively test the RTD and thermocouple configuration, the ambient temperature in -52℃, -50℃, -40℃, -20℃, 0℃, 25℃, 45℃, 65℃, 85℃ range change, record the output value change at 50% of its range compared with the output range, measure (4-20) mA value, HART communication is normal.	(-52~-40)℃ in accordance with GB/T 28473.1-2012 Table 4, Level 0.5 assessment (not more than 0.125%/10℃); (-40~85)℃ in accordance with GB/T 28473.1-2012 Table 4, Level 0.2 assessment (not more than 0.05%/10℃)	0310240 0120053 0310240 0120054	HART communication is normal; (-52~-40)℃:0.054%/10℃ (-40~85)℃:0.038%/10℃ (-52~-40)℃: 0.066%/10℃ (-40~-85)℃: 0.024%/10℃	Pass	/

Test Results and Conclusion

No.	Test Item(s)	Test Standard(s)/ Clause	Test Method(s)/ Condition	Requirements	Serial No.	Test Results/ Max. Limit	Conclusion	Remark
5	Electrical Fast Transient Pulse Group Immunity	ADSTD 1013-2024 Outline of Ultra-low Temperature Test / IV/3, GB/T 17626.4-2018	This test only tests the RTD grouping, GB / T 17626.4-2018 (IEC 61000-4-4) of the third level of the standard index B for the test.	Satisfies Class B requirements.	0310240 0120053	Grade A	Pass	/
6	Surge Immunity	ADSTD 1013-2024 Outline of Ultra-low Temperature Tests / IV/4, GB/T 17626.5-2019	This test only tests the RTD grouping, and is conducted in accordance with Level 4 Standard Indicator B of GB/T 17626.5-2019 (IEC 61000-4-5).	Satisfies Class B requirements.	0310240 0120053	Grade B	Pass	/
7	Conductance Testing	ADSTD 1013-2024 Outline of Ultra-low Temperature Tests/IV/6, GB/T 17626.6-2017	The test is conducted according to the third level standard index B of GB/T17626.6-2017 (IEC61000-4-6).	Satisfies Class B requirements.	0310240 0120053	Grade B	Pass	/
8	Work Frequency Magnetic Field Immunity	ADSTD101 3-2024 Outline of Ultra-low Temperature Test/IV/7, GB/T 17626.8-200 6	This test is only to test the RTD grouping, according to GB/T 17626.8-2006 of the fourth level of the standard index B test.	Satisfies Class B requirements.	0310240 0120053	Grade A	Pass	/
9	RF ElectromaGn etic Field Immunity	ADSTD101 3-2024 Outline of Ultra-low Temperature Test / IV/8, GB/T 17626.3-201 6	This test is only to test the RTD grouping, according to GB/T 17626.3-2006 of the third level of the standard index B test.	Satisfies Class B requirements.	0310240 0120053	Grade B	Pass	/
10	Electrostatic Discharge	ADSTD 1013-2024 Outline of Ultra-low Temperature Tests/IV/9, GB/T 17626.2-201 8	This test only tests the RTD grouping, and is conducted according to the third level standard index B of GB/T 17626.2-2018 (IEC 61000-4-2).	Satisfies Class B requirements.	0310240 0120053	Grade A	Pass	/

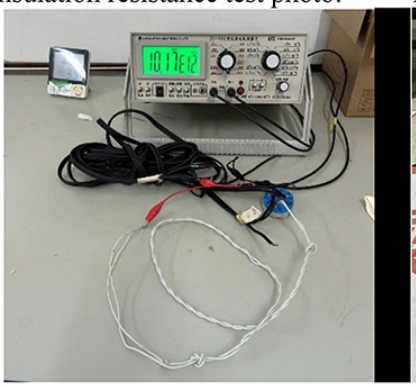
Test Results and Conclusion

No.	Test Item(s)	Test Standard(s)/ Clause	Test Method(s)/ Condition	Requirements	Serial No.	Test Results/ Max. Limit	Conclusion	Remark
11	Mechanical Vibration	ADSTD1013-2024 Outline of Ultra-low Temperature Test / IV/10, GB/T 2423.10-2019	This test only tests the RTD grouping and is performed according to the methods specified in GB/T 2423.10-2019. Vibration test frequency 10-150Hz, vibration amplitude 0.075mm, acceleration amplitude 9.8m/s2, fixed frequency vibration time 30min.	The output of the transmitter should change by less than 1% at 50% of the range.	03102400120053	0.05%	Pass	/

Appendix

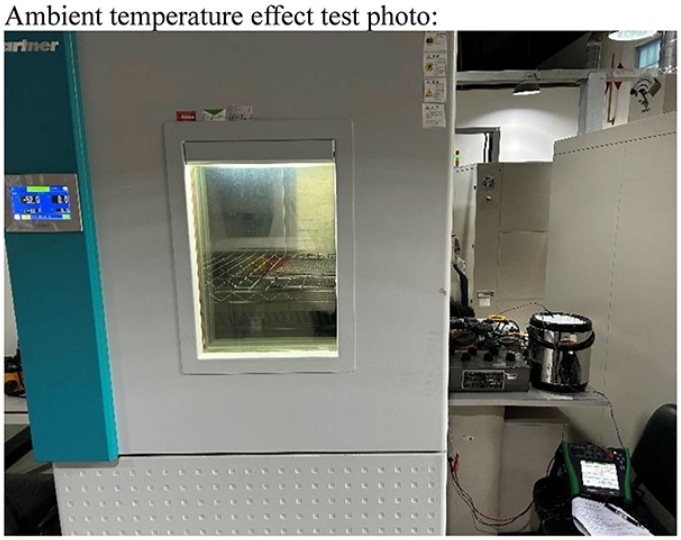
Sample photos:

Insulation resistance test photo:



Insulation strength test photo:

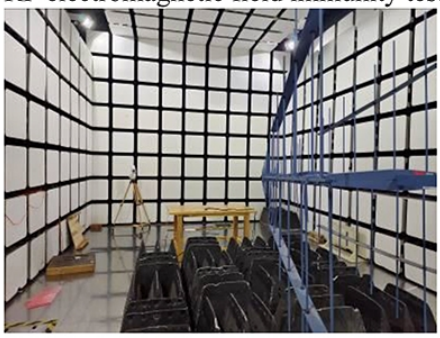
Ambient temperature effect test photo:



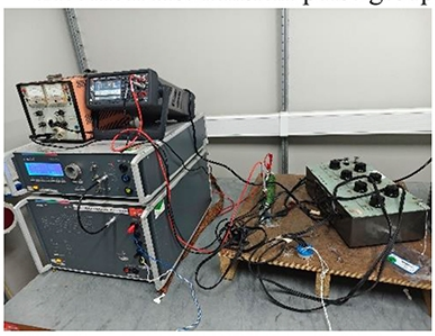
Appendix

Electrostatic discharge immunity test photo：

RF electromagnetic field immunity test photos：

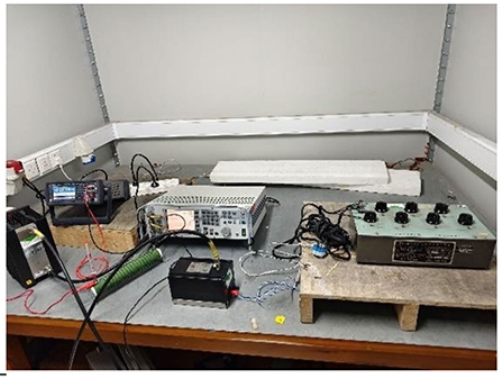


Electrical fast transient pulse group immunity test photo：



Surge (shock) immunity test photos：

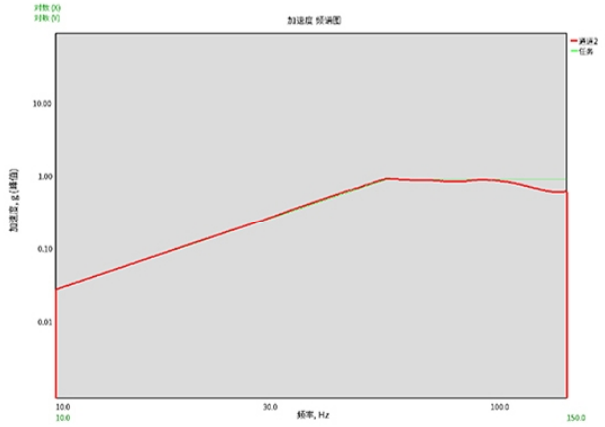
Conducted Harassment Immunity Test Photographs for RF Field Induction：



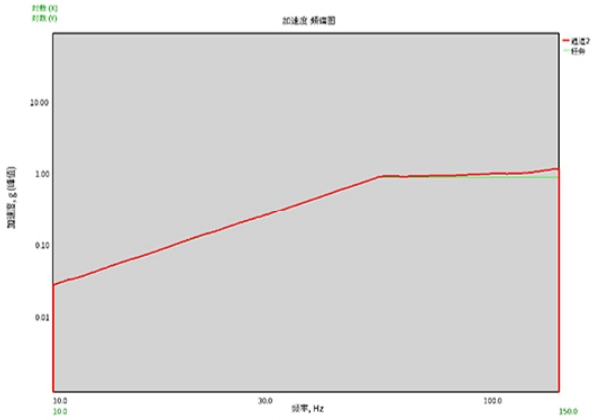
Industrial frequency magnetic field immunity test photo：

Appendix

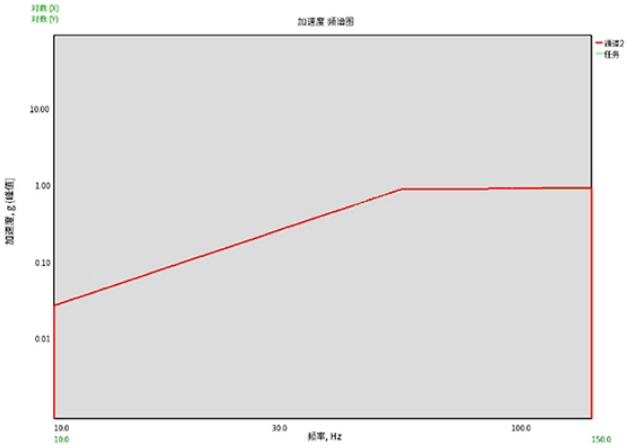
Vibration test curve:



X-direction



Y-direction



Z-direction

Vibration test photos:

-End of Report. The following is blank.