

Test Report

Verified Code:921787

Report No.:H202401255635-02EN

Customer: Beijing HollySys Intelligent Technology Co.,Ltd.

Address: No.2,Disheng Middle Road,Beijing Economic Technological Development Area,100176 Beijing,P. R. China.

Sample Name: LXS system

Sample Model: LXS

Receive Sample Date: Jan.17,2024

Test Date: Jan.17,2024~ Mar.02,2024

Reference Document: IEC 61131-2:2017

Test Result: Meet the requirements

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Issued Date: 2024/4/28

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Test type	☒ Commissioning Test ☐ Routine test ☐ R&D test ☐ PV ☐ DV ☐ ECV ☒ Others _____			
Sample Source	☒ Commissioned units send sample ☐ Others:			
Sample	Model	Quantity	Sample No.	Test No.
LXS System	LXS	1 piece	/	H202401255635-0001
Sample Components and Accessories	Components: / Accessories: /			
Test with packaging or not	☒ Yes, Outer Packing _____ ☐ No			
Sample quality before test	☒ Conformity Product ☐ Non-conformity Product ☐ Prototype ☐ Others			
Abnormal condition of sample before test	No Abnormalities			
Environmental requirements	Temperature: 16.0℃~21.0℃ Relative Humidity: 46%~54% Atmospheric pressure: 96.3kPa~96.5kPa			
Test Address	No.9, Zaozitai Road, New Industrial Park, Hi-Tech Zone, Xi'an, Shaanxi			

Summary of Test Information

Serial number	Project name	Test standard	Test product standard	Experimental conclusion	pagination
1	Sinusoidal vibration test	IEC 60068-2-6:2007	IEC 61131-2:2017	Meet the requirements	5
2	Impact test	IEC 60068-2-27:2008		Meet the requirements	8
3	Drop test	IEC 60068-2-31:2008		Meet the requirements	12

----- The following blanks -----

System version information

序号	Name	Model	Version	Manufacturer	Quantity
1	controller	LX-CU500	B01	Hollysys	1
2	Starting coupler module	LX-IM001	B01	Hollysys	1
3	End coupler module	LX-IM002	A01	Hollysys	1
4	4-channel voltage-current analog output module	LX-AO003	A02	Hollysys	3
5	Safety logic module	LX-LG901	A01	Hollysys	1
6	Safety power relay module	LX-PM903	A	Hollysys	1
7	Safety power supply board	LX-PM901	A	Hollysys	2
8	Safety isolation protection module	LX-AUX901	A	Hollysys	1
9	6 channel safety current type analog input module	LX-AI906	A01	Hollysys	2
10	6-channel safety voltage type analog input module	LX-AI907	A01	Hollysys	2
11	4-channel safety thermocouple input module	LX-TC901	A01	Hollysys	2
12	4-channel safety RTD input module	LX-RTD901	A01	Hollysys	2
13	4-channel safety digital input module	LX-DI906	A01	Hollysys	2
14	8-channel safety digital input module	LX-DI907	A01	Hollysys	2
15	4-channel safety digital output module	LX-DO906	A01	Hollysys	2
16	24V power module	PIC240.241C	C	PULS	1
17	24V power module	PROMAX 240W 24V 10A	/	Weidmuller	1

Revisions used for Software tests

No	Module	SW-revision
1	Auto Think-Safety	V3.2.2
2	Auto Think	Non-safety related configuration tools

----- The following blanks -----

1 Sinusoidal vibration test

1.1 Test conditions

1.1.1 Test basis: IEC 60068-2-6:2007.

1.1.2 Test conditions are shown in Table 1-1.

1.1.3: Sample status: Electricity.

1.1.4: Test configuration method: See Test Cases.

Table 1-1 sinusoidal vibration test conditions

Test frequency (Hz)	Acceleration (g)	Amplitude (o-p) (mm)	Number of sweep cycles	Test axis
5	/	3.5	10	The X, Y and Z axes
8.4	/	3.5		
150	1	/		

1.2 Sample Information

Table 1-2 lists the sample information.

Table 1-2 Sample information

Sample	Model	Quantity	Test No
LXS System	LXS	1piece	H202401255635-0001

1.3 Test requirements

1.3.1 Appearance evaluation:

- Parts should not be damaged, fasteners should not loose phenomenon.
- After testing, there should be no mechanical damage or degradation of performance.

1.3.2 Function/Performance evaluation:

- During the test, the IEC operation of the controller module should be normal, the communication with I/O should be normal, the data uploaded in the AT should be correct, and there is no wrong data input and output.

- b) During and after the module test, the module function should be normal and the accuracy should meet the requirements of the specification. AI module channel acquisition accuracy should meet 0.3%F.S. The acquisition accuracy of TC module should meet $\pm 3^{\circ}\text{C}\%$ F.S. The acquisition accuracy of RTD module should meet: $< \pm 0.5^{\circ}\text{C}$ (Pt sensors, 3-wire), $< \pm 0.9^{\circ}\text{C}$ (Ni sensors), $< 1^{\circ}\text{C}$ (Pt sensors, 2-wire). DI module channel acquisition value should not change. The output signal of the DO module should move without error.

1.4 Test Result

The test results are shown in Table 1-3

Table 1-3 Appearance test results

No.	Test item	Test result	Conclusion
1	Appearance evaluation	Parts are not damaged, fasteners are not loose phenomenon.	Meet the requirements
		No mechanical damage or performance degradation occurred.	
2	Function/Performance evaluation	During the test, the IEC operation of the controller module is normal, the communication with I/O is normal, the data uploaded in AT is correct, and there is no wrong data input and output	Meet the requirements
		After the module test and test, the module function is normal and the accuracy meets the requirements of the specification. AI module channel acquisition accuracy meets 0.3%F.S. The acquisition accuracy of TC module meets $\pm 3\%$. RTD module acquisition accuracy: $< \pm 0.5^{\circ}\text{C}$ (Pt sensors, 3-wire), $< \pm 0.9^{\circ}\text{C}$ (Ni sensors), $< 1^{\circ}\text{C}$ (Pt sensors, 2-wire). DI module channel acquisition value does not change. The output signal of the DO module moves without error.	

1.5 Test Photos

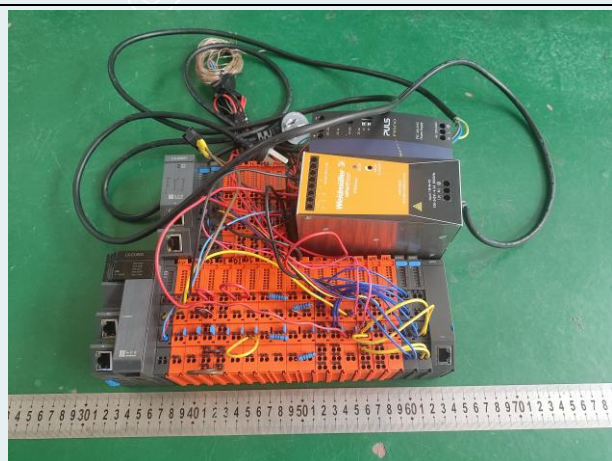


Fig 1-1 Sample appearance check before test

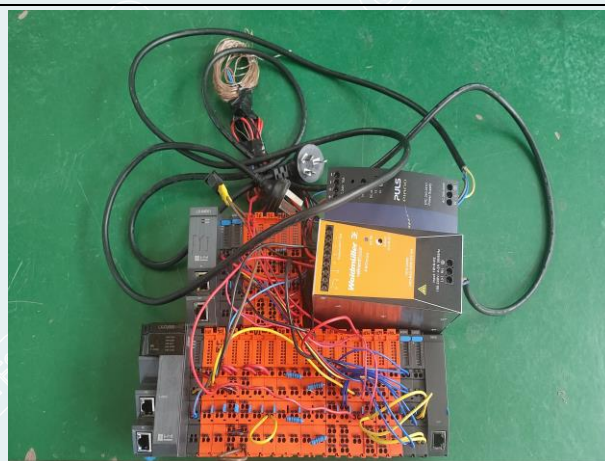


Fig 1-2 Sample appearance after test

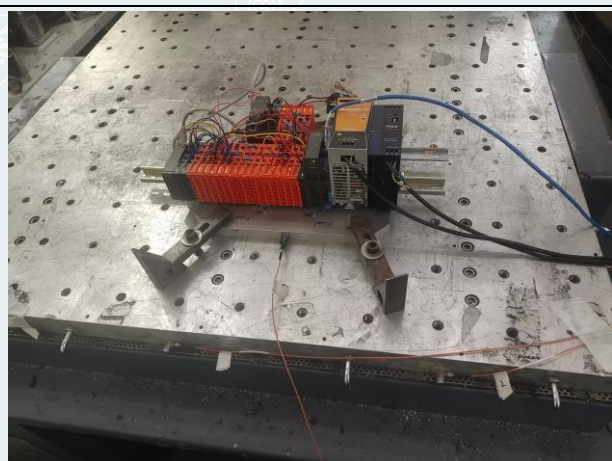


Fig 1-4 Sample setup diagram (X-axis)

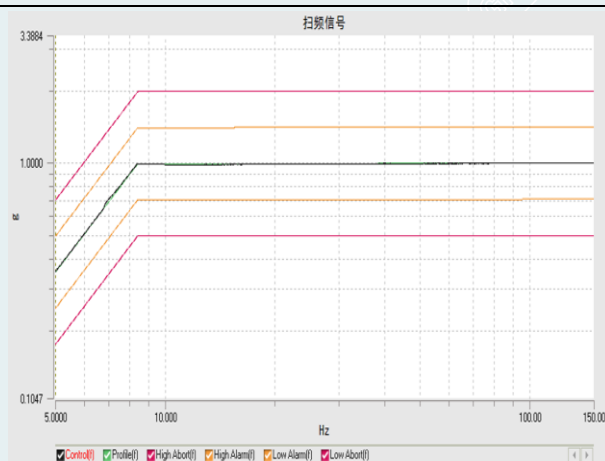


Fig 1-5 Test curve (X-axis)

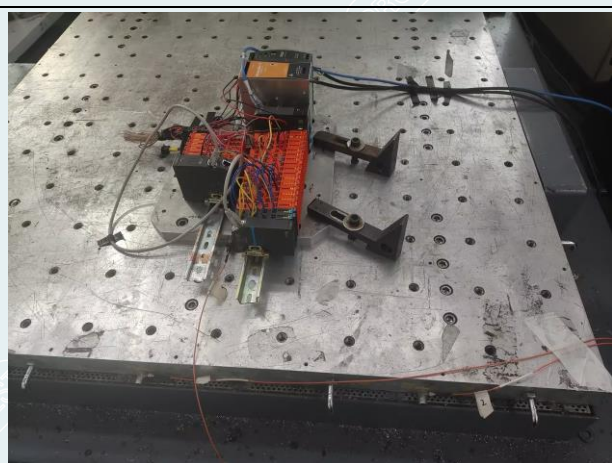


Fig 1-6 Sample setup diagram (Y-axis)

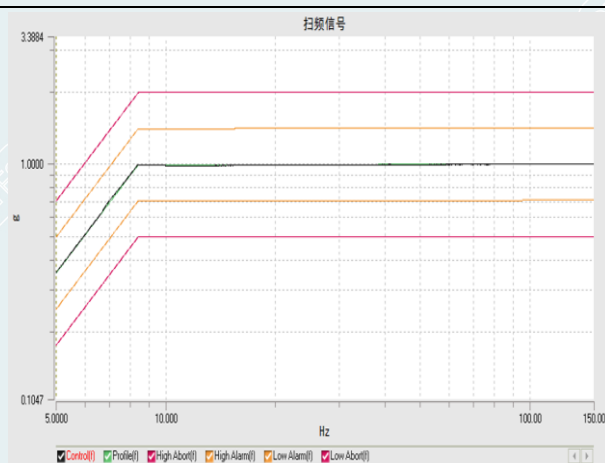


Fig 1-7 Test curve (Y-axis)

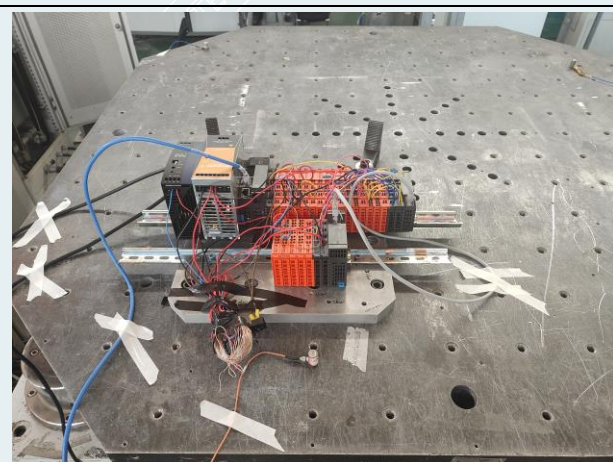


Fig 1-8 Sample setup diagram (Z-axis)

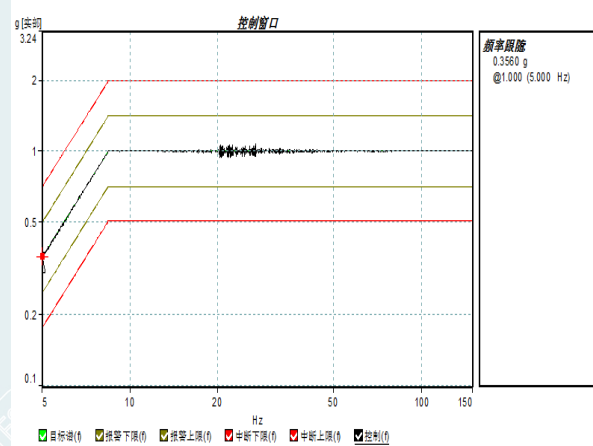


Fig 1-9 Test curve (Z-axis)

2 Impact test

2.1 Test Conditions

2.1.1 Test basis: IEC 60068-2-27:2008.

2.1.2 Test conditions are shown in Table 2-1.

2.1.3: Sample status: Electricity.

1.1.4: Test configuration method: See Test Cases.

Table 2-1 Impact test conditions

Impact waveform	Acceleration (g)	Pulse duration (ms)	Impact direction	Number of shocks
Half sine wave	15	11	$\pm X$ 、 $\pm Y$ 、 $\pm Z$	3 times/direction, a total of 18 times

2.2 Sample Information

Table 2-2 lists the sample information.

Table 2-2 Sample information

Sample	Model	Quantity	Test No
LXS System	LXS	1piece	H202401255635-0001

2.3 Test Requirements

2.3.1 Appearance evaluation:

- c) Parts should not be damaged, fasteners should not loose phenomenon.
- d) After testing, there should be no mechanical damage or degradation of performance.

2.3.2 Function/Performance evaluation:

- c) During the test, the IEC operation of the controller module should be normal, the communication with I/O should be normal, the data uploaded in the AT should be correct, and there is no wrong data input and output.
- d) During and after the module test, the module function should be normal and the accuracy should meet the requirements of the specification. AI module channel acquisition accuracy should meet 0.3%F.S. The acquisition accuracy of TC module should meet $\pm 3\%$. The acquisition accuracy of RTD module should meet: $< \pm 0.5^{\circ}\text{C}$ (Pt sensors, 3-wire), $< \pm 0.9^{\circ}\text{C}$ (Ni sensors), $< 1^{\circ}\text{C}$ (Pt sensors, 2-wire). DI module channel acquisition value should not change. The output signal of the DO module should move without error.

2.4 Test Conclusion

The test results are shown in Table 2-3

Table 2-3 Appearance test results

No.	Test item	Test result	Conclusion
1	Appearance evaluation	Parts are not damaged, fasteners are not loose phenomenon.	Meet the requirements
		No mechanical damage or performance degradation occurred.	
2	Function/Performance evaluation	During the test, the IEC operation of the controller module is normal, the communication with I/O is normal, the data uploaded in AT is correct, and there is no wrong data input and output	Meet the requirements

		After the module test and test, the module function is normal and the accuracy meets the requirements of the specification. AI module channel acquisition accuracy meets 0.3%F.S. The acquisition accuracy of TC module meets $\pm 3\%$. RTD module acquisition accuracy: $< \pm 0.5\text{ }^{\circ}\text{C}$ (Pt sensors, 3-wire), $< \pm 0.9\text{ }^{\circ}\text{C}$ (Ni sensors), $< 1\text{ }^{\circ}\text{C}$ (Pt sensors, 2-wire). DI module channel acquisition value does not change. The output signal of the DO module moves without error.	
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2.5 Test Photos



Fig 2-1 Sample appearance check before test

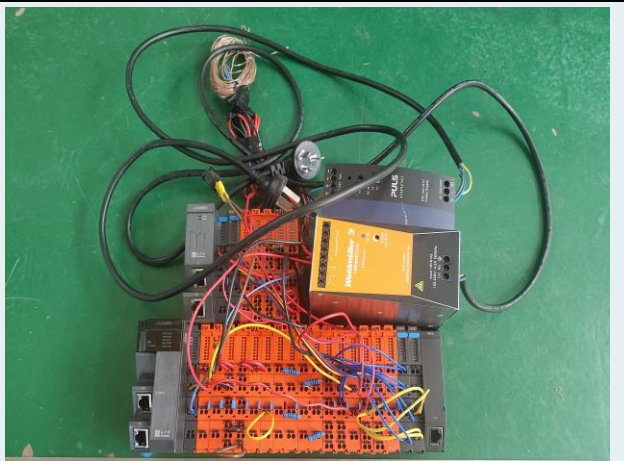


Fig 2-2 Sample appearance check after test

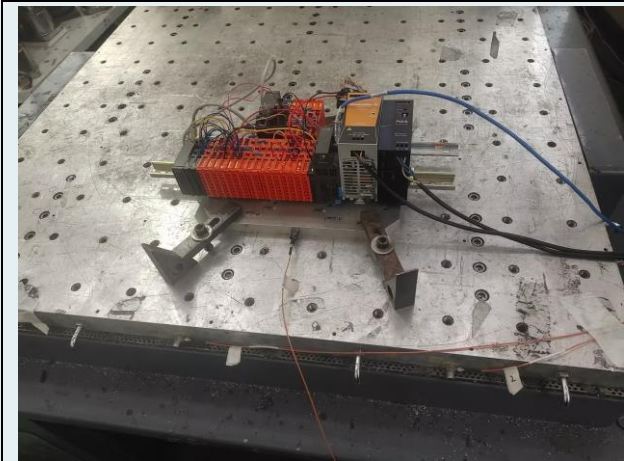


Fig 2-3 Sample setup diagram (X-axis)

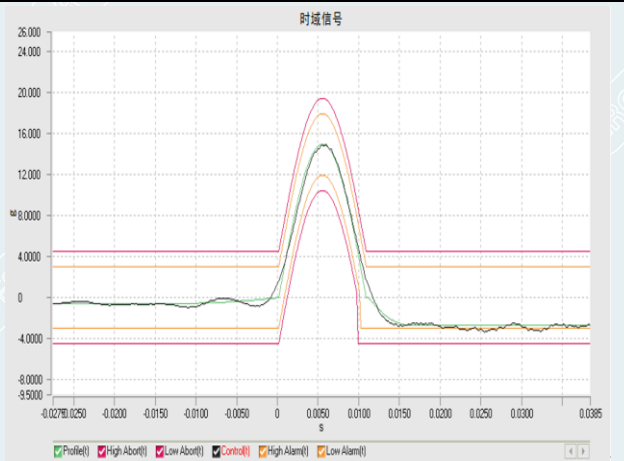


Fig 2-4 Test curve (+X-direction)

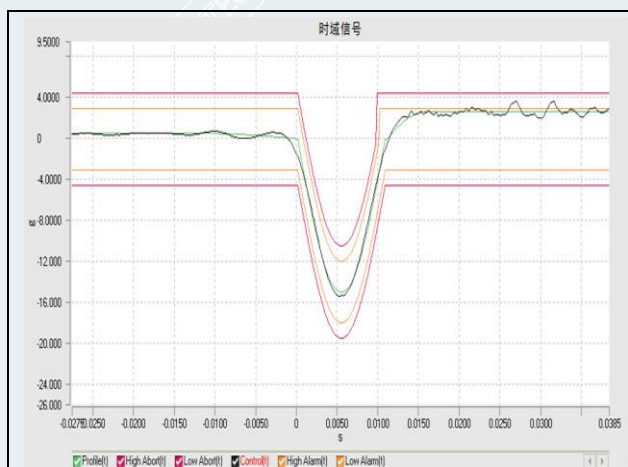


Fig 2-5 Test curve (-X-direction)

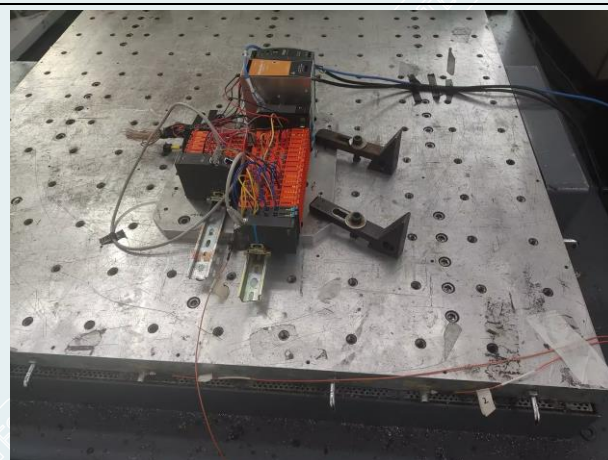


Fig 2-6 Sample setup diagram (Y-axis)

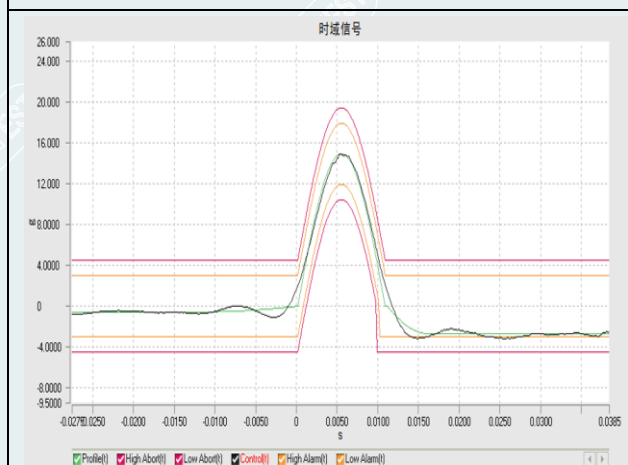


Fig 2-7 Test curve (+Y-direction)

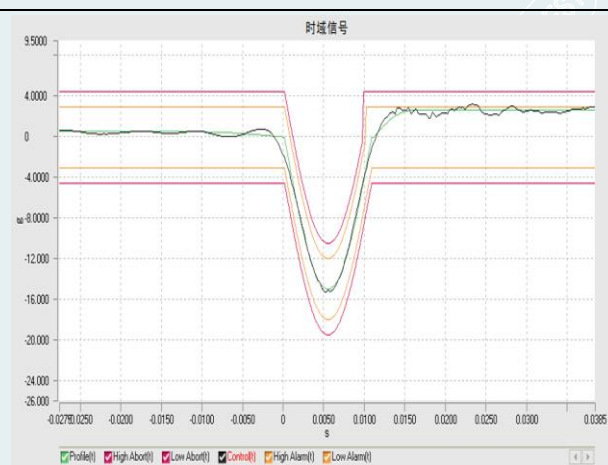


Fig 2-8 Test curve (-Y-direction)

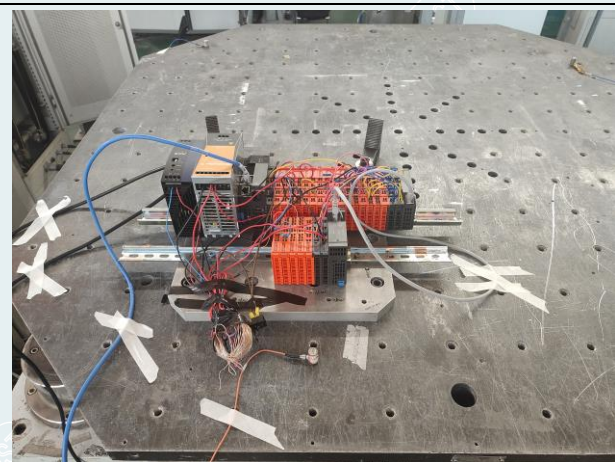


Fig 2-9 Sample setup diagram (Z-axis)

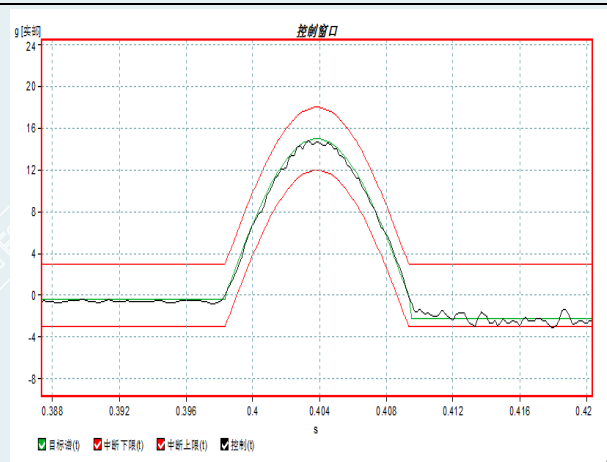
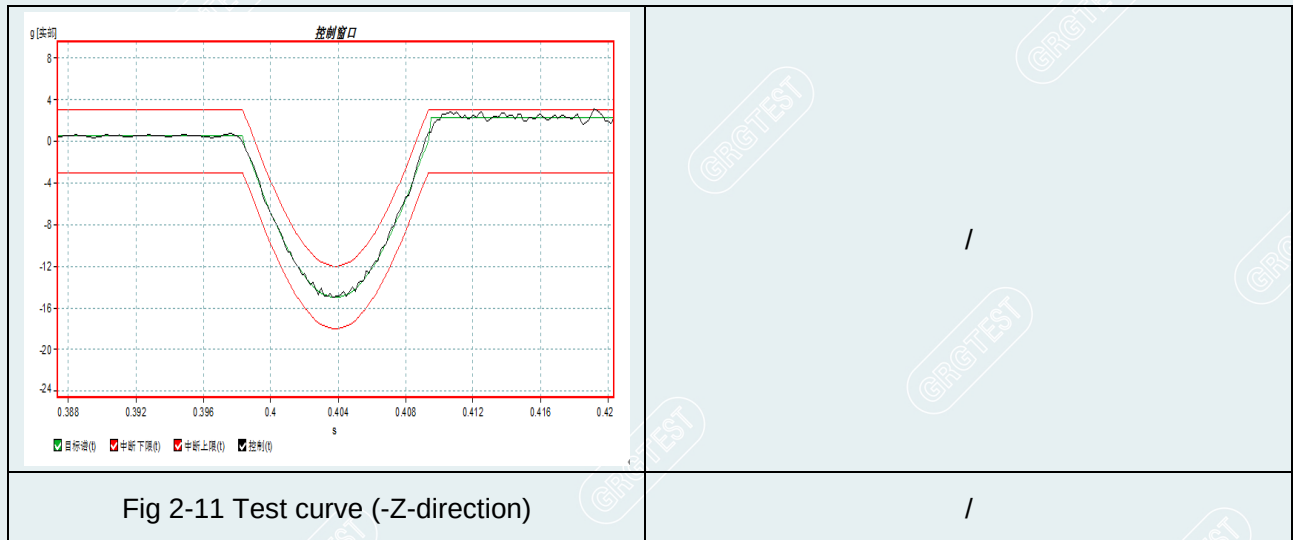


Fig 2-10 Test curve (+Z-direction)



3 Drop test

3.1 Test conditions

3.1.1 Test basis: IEC 60068-2-31:2008.

3.1.2 Test conditions are shown in Table 3-1.

3.1.3 Sample status: Sample power-off.

Table 3-1 drop dynamic test conditions

Sample name	Sample type	Face order	Number of drops	Height (mm)	remark
LXS System	LXS	6 faces, 12 sides, 8 angles	Once on each side	Packing height with delivery: 1000 With product packaging height: 300	/

3.2 Sample Information

Table 3-2 lists the sample information.

Table 3-2 Sample information

Sample	Model	Quantity	Test No
LXS Control System	LXS	1piece	H202401255635-0001

3.3 Test Requirements

3.3.1 Appearance evaluation:

- a) The module should have no signs of physical damage.

3.3.2 Function/Performance evaluation:

- a) The module should work properly.

3.4 Test Conclusion

The test results are shown in Table 3-3

Table 3-3 Appearance test results

No.	Test item	Test result	Conclusion
1	Appearance evaluation	No sign of physical damage to the module	Meet the requirements
2	Function/Performance evaluation	The module works properly	Meet the requirements

3.5 Test Photos



Fig 3-1 Appearance inspection of the subject before the test 1



Fig 3-2 Appearance inspection of the subject before the test 2



Fig 3-3 Appearance inspection of the subject before the test 3



Fig 3-4 Appearance inspection of the subject before the test 4



Fig 3-5 Post-test appearance inspection 1



Fig 3-6 Post-test appearance inspection 2



Fig 3-7 Typical subject setup diagram 1



Fig 3-8 Typical subject setup diagram 2



Fig 3-9 Typical subject setup diagram 3



Fig 3-10 Typical subject setup diagram 4



Fig 3-11 Typical subject setup diagram 5



Fig 3-12 Typical subject setup diagram 6



Fig 3-13 Typical subject setup diagram 7



Fig 3-14 Typical subject setup diagram 8



Fig 3-15 Typical subject setup diagram 9



Fig 3-16 Typical subject setup diagram 10



Fig 3-17 Typical subject setup diagram 11



Fig 3-18 Typical subject setup diagram 12



Fig 3-19 Typical subject setup diagram 13



Fig 3-20 Typical subject setup diagram 14



Fig 3-21 Typical subject setup diagram 15



Fig 3-22 Typical subject setup diagram 16



Fig 3-23 Typical subject setup diagram 17



Fig 3-24 Typical subject setup diagram 18



Fig 3-25 Typical subject setup diagram 19



Fig 3-26 Typical subject setup diagram 20



Fig 3-27 Typical subject setup diagram 21



Fig 3-28 Typical subject setup diagram 22



Fig 3-29 Typical subject setup diagram 23



Fig 3-30 Typical subject setup diagram 24



Fig 3-31 Typical subject setup diagram 25



Fig 3-32 Typical subject setup diagram 26

4 Test Instrument & Equipment

List of Instrument for Testing Equipment					
No	Testing Item	Instrument/Equipment	Type	Serial No	Calibration Valid Date
1	Sinusoidal vibration test Impact test	Digital Electric Vibration Test System (5T)	ES-50-445	D1806323	2023-05-08~2024-05-07
		Digital Electric Vibration Test System (10T)	ES-200LS3-650/LT818	D1909397	2023-05-08~2024-05-07
		sensor	1A314E	C190914178	2023.08.30~2024.08.29
		sensor	1A314E	C190914192	2023.08.30~2024.08.29
		sensor	DL1108	1277	2022.10.10~2023.10.09
2	Drop test	Single-arm drop testing machine	QT-DL6010	VX-76	2023-08-14~2024-08-13

----- End of Report -----