

Sunrise Instruments Calibration Report

Address: 2nd Floor Building B2 19#Keyuan Xishi Road Nanning Guangxi Province China 530007

Phone: +86 771-389-9499 Fax: +86 771-389-9497

Email: sri@srisensor.com



Calibration Report

Calibration No.	SRI-V-251202-B	Cal Date	2025/12/2
Model No.	M4313S1J6D	Serial No.	37016
Technician	Chen Feng Sheng	Temp(C)/Hum.(%).	25/60
Customer	北京人形机器人创新中心	Excitation(V)	10.0000
Description	6 AXIS FORCE SENSOR	Cable Length	300mm
Comments			

Voltage Calibration

<u>Bridge</u>	<u>Capacity</u>	<u>Zero Offset</u>	<u>Nonlinearity</u>	<u>Hysteresis</u>	<u>Output @ Capacity</u>	<u>Sensitivity</u>	<u>Change</u>
	N/Nm	V	%FS	%FS	V	V/EU	%
FX	-300	0.0000	0.37	0.23			
FY	300	0.0000	0.25	0.34			
FZ	-300	0.0000	0.23	0.26			
MX	-60	0.0000	0.13	0.37		DECOUPLE	
MY	-60	0.0000	0.24	0.32			
MZ	60	0.0000	0.21	0.19			

Wire Color Codes

FUNCTION

+EXC

+SIG

-EXC

-SIG

Sensor ID

ID Return

Reference Load Cell

<u>Manufacturer</u>	<u>Model Type</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Cal Due Date</u>
SUNRISE	GOLDEN TYPE	SRI_1000N-1	30727	2026/6/30

Calibrated by

Chen Feng Sheng

Approved by

Zhou

Sunrise Instruments Calibration Report

Address: 2nd Floor Building B2 19#Keyuan Xishi Road Nanning Guangxi Province China 530007

Phone: +86 771-389-9499 Fax: +86 771-389-9497

Email: sri@srisensor.com



Calibration Report

Calibration No.	SRI-V-251202-B	Cal Date	2025/12/2
Model No.	M4313S1J6D	Serial No.	37016
Technician	Chen Feng Sheng	Temp(C)/Hum.(%).	25/60
Customer	北京人形机器人创新中心	Excitation(V)	10.0000
Description	6 AXIS FORCE SENSOR	Cable Length	300mm
Comments			

CROSSTALK

<u>Bridge</u>	<u>Load</u>	<u>FX</u>	<u>FY</u>	<u>FZ</u>	<u>MX</u>	<u>MY</u>	<u>MZ</u>
	N/Nm	% FS	% FS	% FS	% FS	% FS	% FS
FX	-300	0.00	0.10	0.36	0.60	0.60	0.60
FY	300	0.59	0.00	0.08	0.52	1.09	0.36
FZ	-300	1.04	0.10	0.00	0.82	0.05	0.12
MX	-60	0.30	1.54	1.46	0.00	0.46	0.33
MY	-60	0.78	0.43	1.50	0.66	0.00	0.94
MZ	60	0.47	1.72	0.11	0.45	1.35	0.00

Bridge to Transducer body resistance greater than 5G Ohm when measured with 50V excitation

Sunrise Instruments Calibration Report

Address: 2nd Floor Building B2 19#Keyuan Xishi Road Nanning Guangxi Province China 530007

Phone: +86 771-389-9499 Fax: +86 771-389-9497

Email: sri@srisensor.com



Calibration Report

Calibration No.	SRI-V-251202-B	Cal Date	2025/12/2
Model No.	M4313S1J6D	Serial No.	37016
Technician	Chen Feng Sheng	Temp(C)/Hum.(%).	25/60
Customer	北京人形机器人创新中心	Excitation(V)	10.0000
Description	6 AXIS FORCE SENSOR	Cable Length	300mm
Comments			

SENSOR TYPE A ----- OUTPUT RELATED TO EXCITATION VOLTAGE.

Decoupled Matrix

2.41	-493.82	1.90	495.03	27.51	-0.62	365.97	373.21	-426.21
-14.36	286.01	12.56	283.42	-6.35	-570.51	453.62	-463.27	-20.85
-533.31	5.69	-532.12	2.52	-533.29	-1.97	0.00	0.00	0.00
-10.34	3.22	11.31	3.02	0.27	-6.39	10.65	-5.62	0.97
5.68	5.27	5.93	-4.60	-12.43	-0.66	-9.85	-10.46	6.60
-0.07	13.28	-0.03	14.16	0.18	13.50	0.00	0.00	0.00

The six axis loads can be decoupled as follows:

Step 1: Obtain the raw data of Channels 1 through 9 into Volt

[RAW] = {rawchn1, rawchn2, rawchn3, rawchn4, rawchn5, rawchn6, rawchn7, rawchn8, rawchn9}

where rawchn1, rawchn2, rawchn3, rawchn4, rawchn5, rawchn6, rawchn7, rawchn8 and rawchn9 are in V

Step 2: Convert the raw data into mV/V

Assume the raw data output in Volt, Excitation voltage = EXC, Amplifier gain = GAIN

[DAT] = {chn1, chn2, chn3, chn4, chn5, chn6, chn7, chn8, chn9} * 1000 / (EXC * GAIN)

where chn1, chn2, chn3, chn4, chn5, chn6, chn7, chn8 and chn9 are in mV/V

Step 3: To calculate decoupled loads

[RESULT]^T = [DECOUPLED] * [DAT]^T

where [RESULT] = {FX, FY, FZ, MX, MY, MZ}. Force Unit: N. Moment Unit: Nm

[DECOUPLED] is the above decoupled matrix