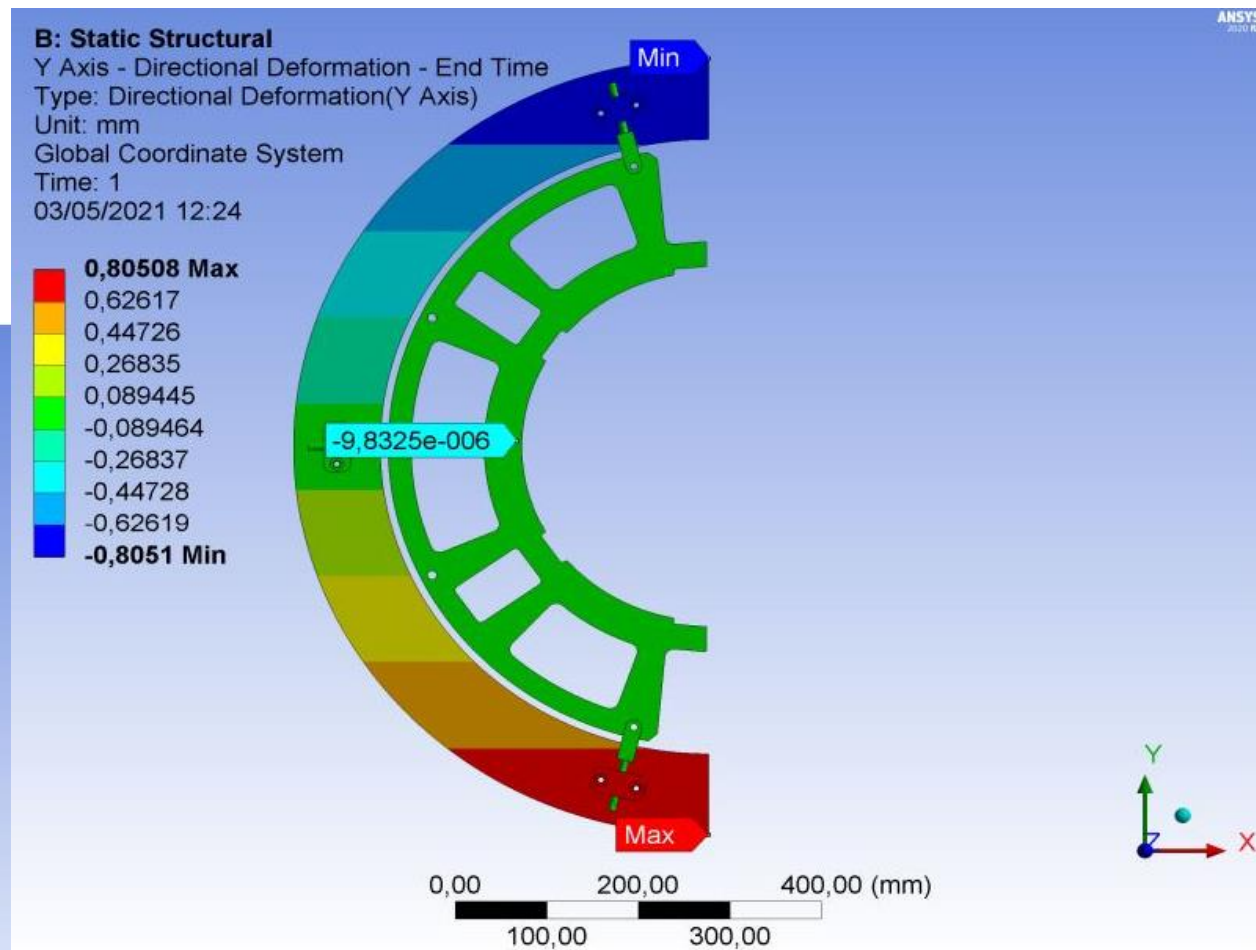
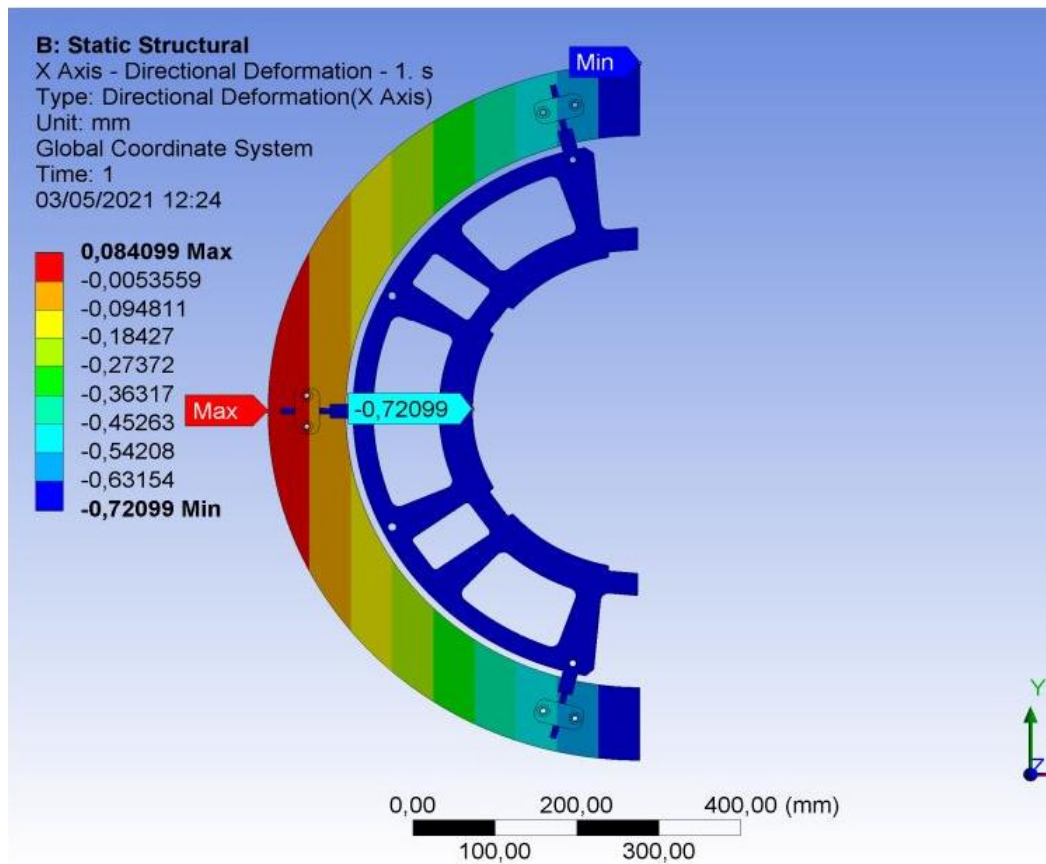


Calibration of LVDT Sensor

Beka Buadze
Matteo Beretta
Zaza Chubinidze
Marianna Testa



Made By S. Tomassini

LVDT Sensor

Measurement from manual LVDT sensor

Measured Inches	Measured mm	Measured Volts RMS	Calc. Volts RMS	Calc. Deviation
-0.25	-6.35	-1.3409	-1.3401	-0.0007
-0.2	-5.08	-1.0719	-1.0724	0.0006
-0.15	-3.81	-0.8053	-0.8047	-0.0005
-0.1	-2.54	-0.5377	-0.537	-0.0006
-0.05	-1.27	-0.2677	-0.2693	0.0017
0.05	1.27	0.2661	0.266	0.0001
0.1	2.54	0.5348	0.5337	0.0011
0.15	3.81	0.8015	0.8014	0.0001
0.2	5.08	1.0666	1.0691	-0.0025
0.25	6.35	1.3379	1.3368	0.0011

Calculation formula

Volts RMS = LVDT sensitivity * Excitation Voltage, * GAIN * Position

Volts RMS - Y

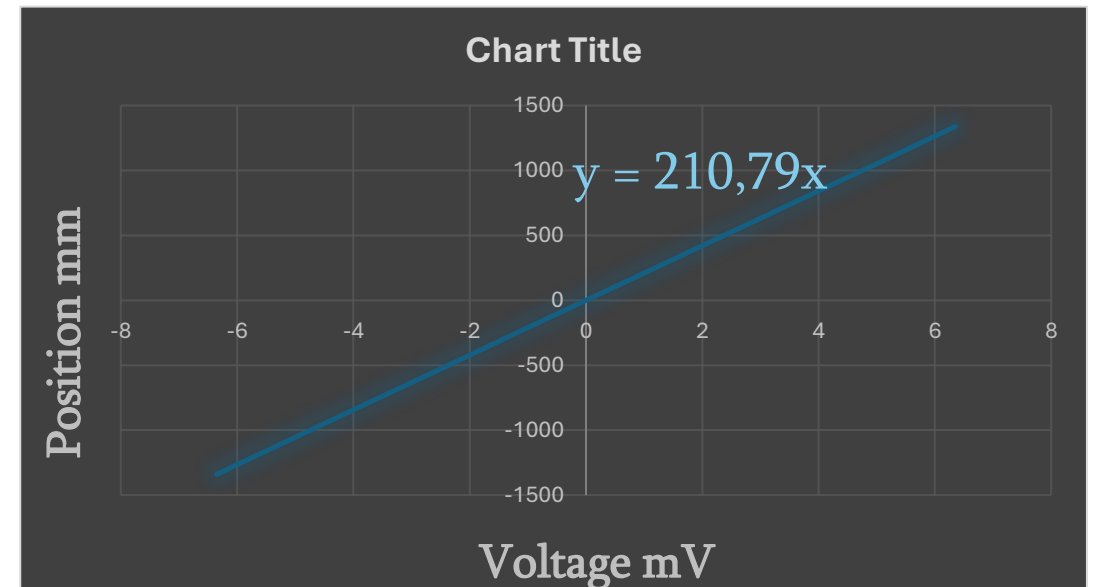
LVDT sensitivity - 1,7847 mV/Volts RMS/0.001 Inches - 70.26mV/Volts RMS/mm

Excitation Voltage - 3VRMS

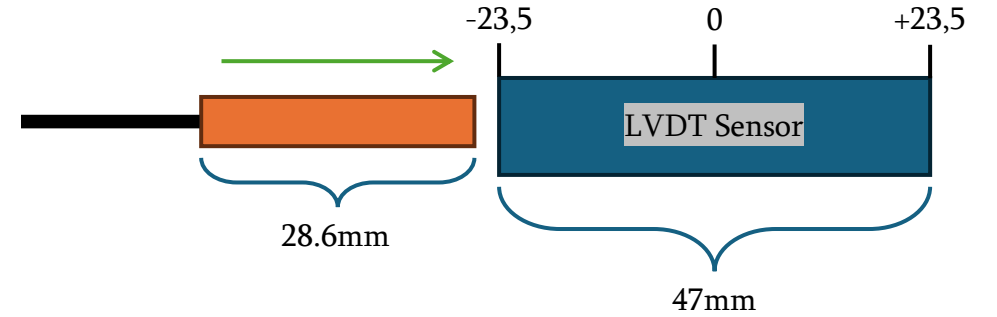
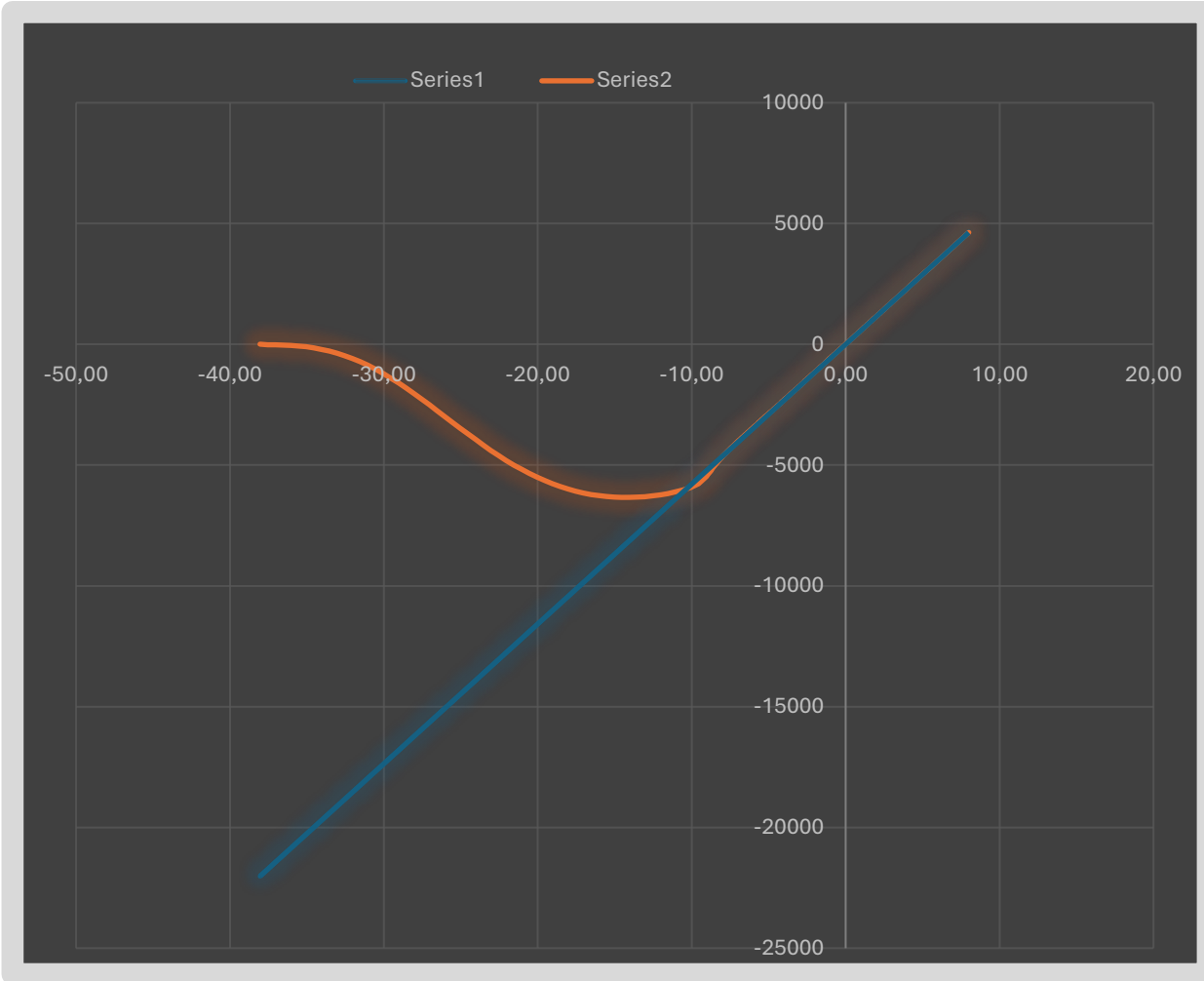
GAIN - 1

Position - X

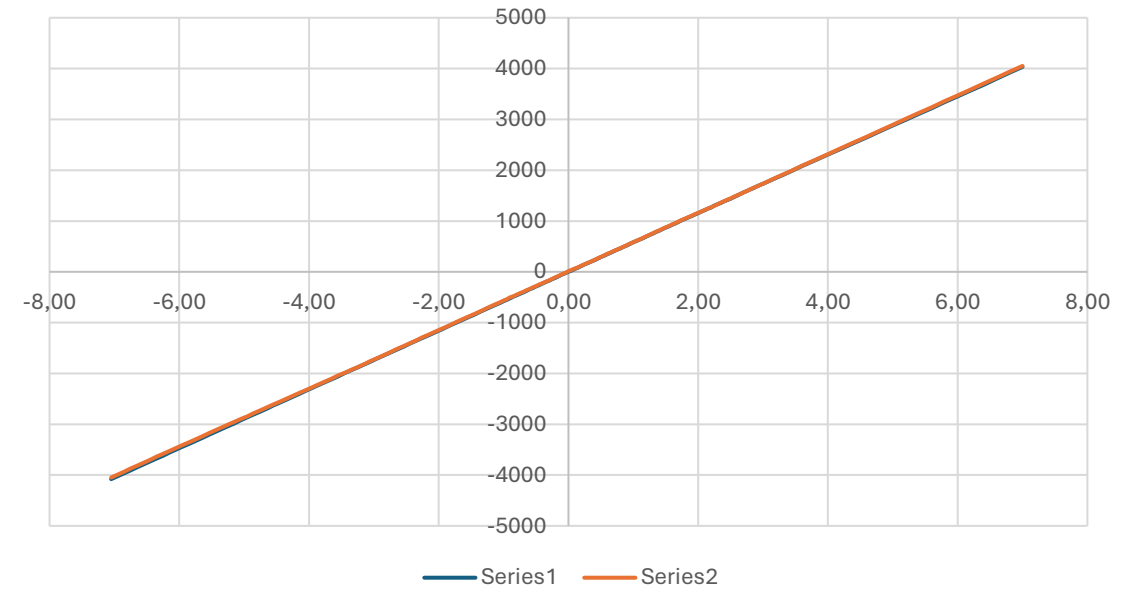
$$Y = 210.79X$$



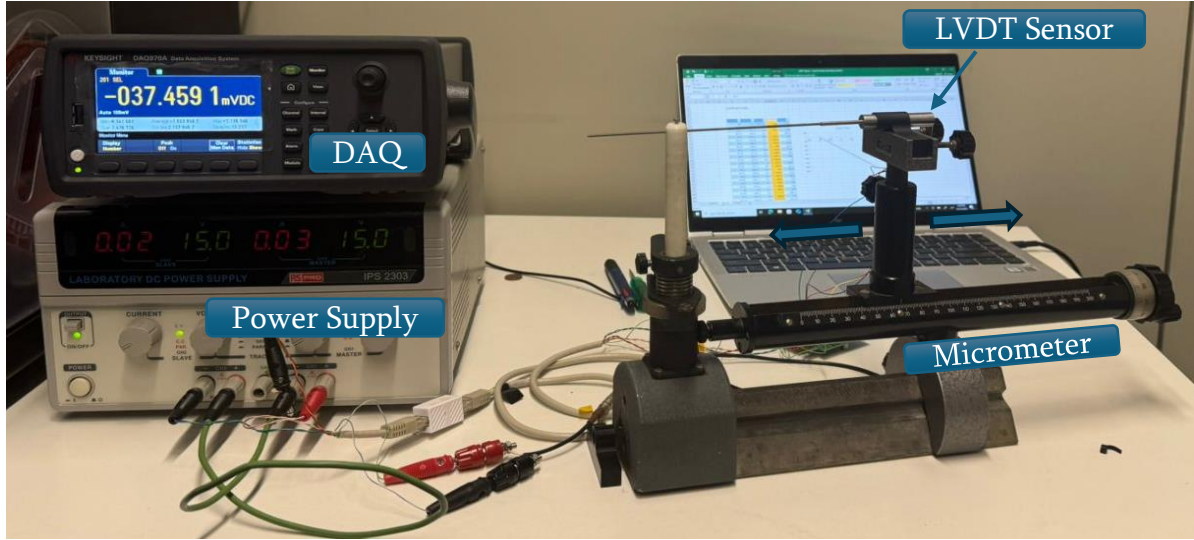
Working Area



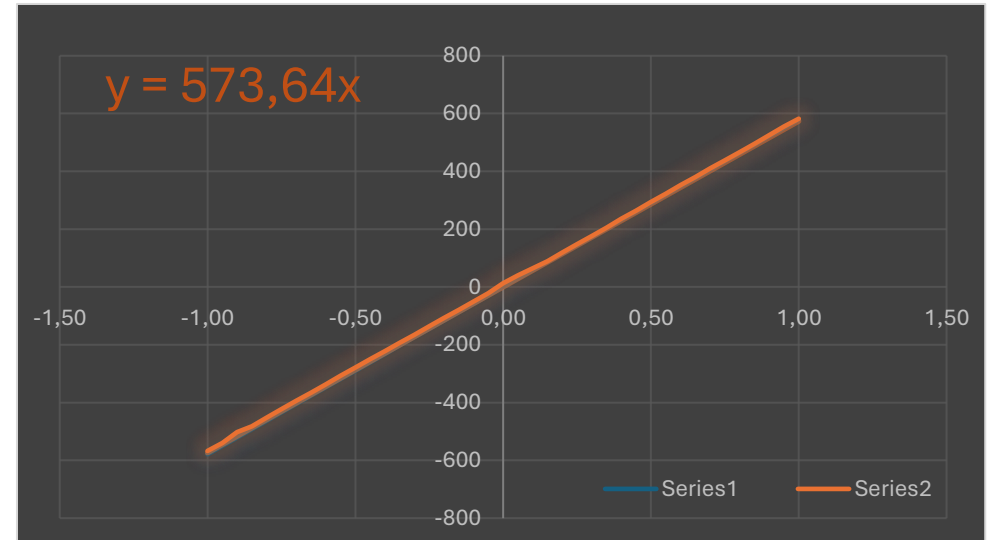
Working Area is -7mm to +7mm



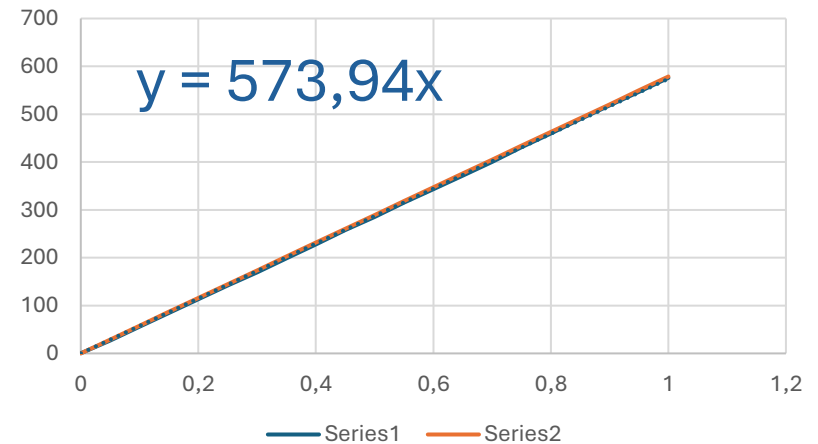
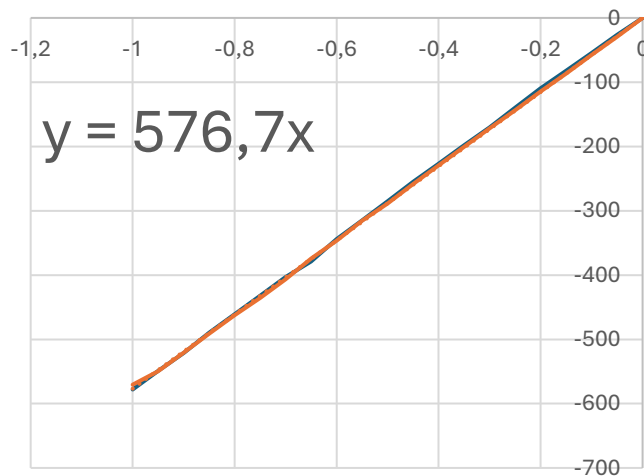
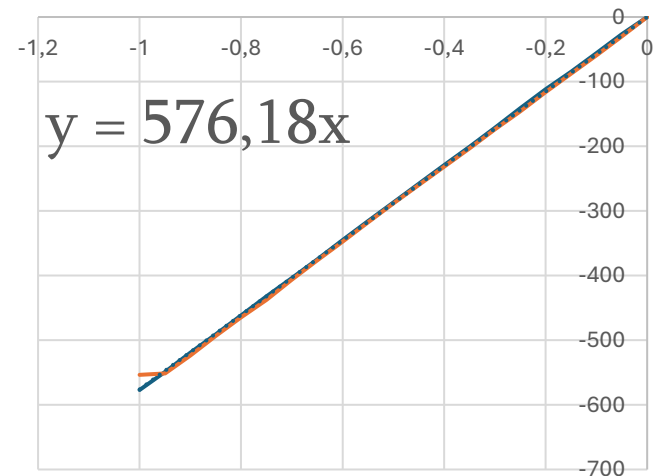
The method of measuring with a micrometer



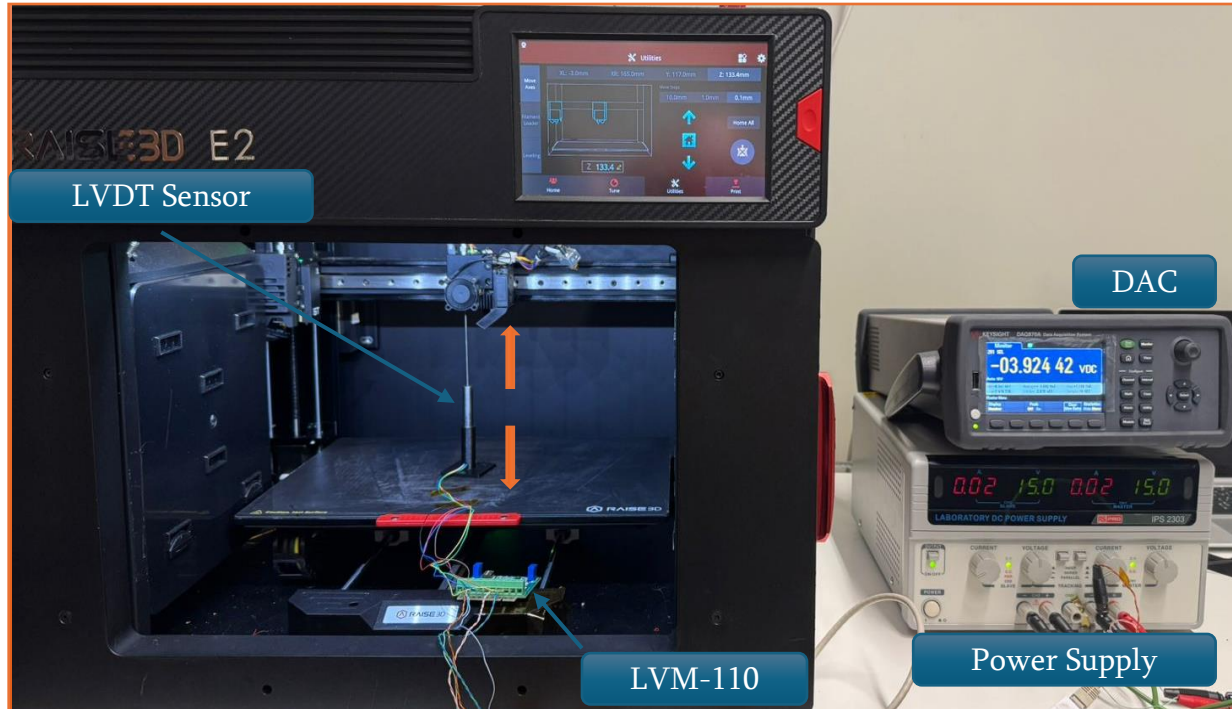
DAQ used for measurement



Multimeter used for measurement

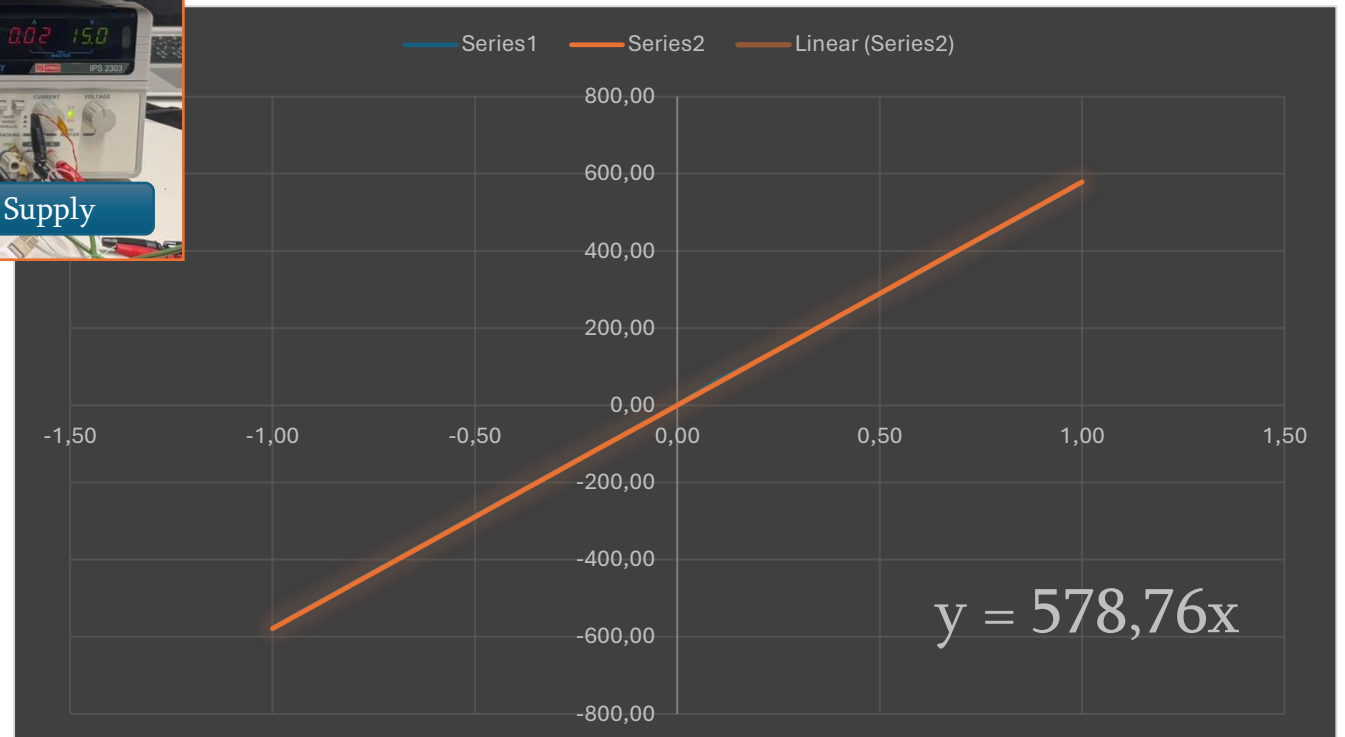


The method of measuring with a 3D Printer



$$Y=210.6 * 2,7369X$$

We can say that the measurement precision is 50 microns

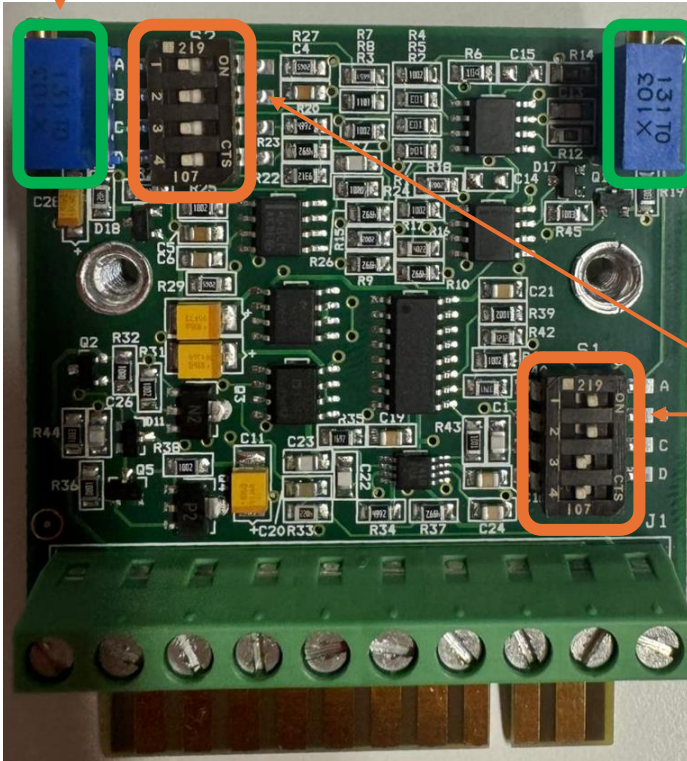


LVM-110

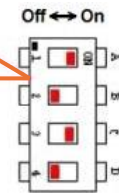
LVDT Signal Conditioning Module

zero adjustment

GAIN



Oscillator Frequency	S1-C	S1-D
2.5 KHZ	OFF	OFF
5 KHZ	ON	OFF
8 KHZ	OFF	ON
10 KHZ	ON	ON



Single or multi sensors

S1-B	Mode
OFF	SLAVE
ON	MASTER

Plans

- Perform Aging Calibration
- Place Sensor in Small Climate Chamber
- Take Measurements in Climate Chamber

First Stage			Second Stage		LVDT Full Scale Output for ±10VDC output
Gain	S2-A	S2-B	Gain Lo/Hi	S1-A	
x0.2	OFF	OFF	LOW	ON	2.10 to 5.55 VRMS
x0.2	OFF	OFF	HIGH	OFF	1.00 to 2.64 VRMS
x0.5	ON	OFF	LOW	ON	0.84 to 2.22 VRMS
x0.5	ON	OFF	HIGH	OFF	0.40 to 1.00 VRMS
x2	OFF	ON	LOW	ON	0.21 to 0.55 VRMS
x2	OFF	ON	HIGH	OFF	0.10 to 0.26 VRMS

