

# Performance Test Protocol

## P-840.20 - Linearity

File: 120046890\_linearity\_OL.cal

Protocol No.: FM 7.5-16 A4

14:54 2021-06-16

### Order Info

Customer  
Customer Ref No.  
PI Order No.

### System Setup

Stage	P-840.20
Ser. No.	120046890
Commanded Axis	-
Measured Axis	-
Feedback Sensor	NONE
Sensor Bandwidth	
Design	Standard
Nominal Oper. Voltage	100 V
Nominal Expansion	30 µm
Controller	E-709.SRG #121012018
Calibration Type	Standard, via digital interface

### Measurement Setup

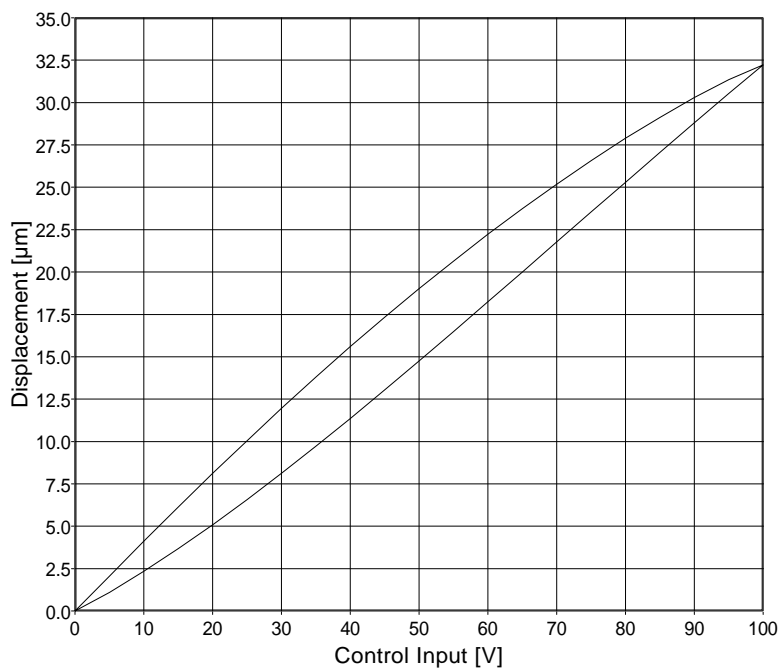
Measurement Device	Millitron
Meas. Device Type	Precision Gauge
Measurement Range	200 µm
Temperature	22.0 °C
Air Pressure	989.0 mbar
Humidity	32.0 %
Measurement Date	21:37:24, 2021-03-09
Meas. Program	PZTCalib 7.8.0.0
Examiner	FER
Min. Ctrl Input	0.0 V
Max. Ctrl Input	100.0 V
Step Size	5.0 V
Time Delay	0.5 s

### Measurement Results

Ctrl In [V]	Output + [µm]	nonlin [µm]	nonlin [%]
0.0000	0.0000	0.0000	0.0000
5.0000	1.0933	-0.5179	-1.6071
10.0000	2.3401	-0.8822	-2.7379
15.0000	3.6788	-1.1548	-3.5836
20.0000	5.0888	-1.3559	-4.2079
25.0000	6.5778	-1.4781	-4.5871
30.0000	8.1240	-1.5431	-4.7888
35.0000	9.7213	-1.5570	-4.8318
40.0000	11.3517	-1.5377	-4.7721
45.0000	13.0426	-1.4580	-4.5247
50.0000	14.7526	-1.3592	-4.2179
55.0000	16.4875	-1.2355	-3.8340
60.0000	18.2397	-1.0944	-3.3962
65.0000	20.0056	-0.9397	-2.9162
70.0000	21.7758	-0.7807	-2.4227
75.0000	23.5477	-0.6200	-1.9240
80.0000	25.3002	-0.4787	-1.4855
85.0000	27.0686	-0.3214	-0.9974
90.0000	28.8125	-0.1887	-0.5856
95.0000	30.5369	-0.0755	-0.2342
100.0000	32.2235	0.0000	0.0000

Control Function:  
Expansion = 0.322235\*Ctrl\_In + 0.0000 µm

### Displacement Curves



### Linearity

