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Subject: Stylus Force Calibration on the DektakXT Systems Affected: DektakXT Action Category: On Next Use Summary: Stylus Force Calibration in Vision64 Software for the DektakXT

In the Vision64 software for the DektakXT, the Stylus Force Calibration is done automatically. The software also allows you to calculate and store force values separately for each different radius stylus. Select the appropriate radius in Measurement Setup before calibrating.

1. Click on the Stylus Force Calibration icon in the "Configuration" section of the top menu bar.



2. The following window will appear. Click "Auto Calibrate."

Transformed Stylus Force Calibration	
Current Force Calibration	n
Weight: 0 mg	DAC: 24000
Weight: 1 mg	DAC: 25973
Weight: 6 mg	DAC: 32961
Weight: 15 mg	DAC: 44347
Auto Cali	brate
Done Rese	et Cancel

You might be able to notice that the DAC values – the <u>default</u> values – are, from top to bottom:					
DAC:	24000				
DAC:	25973				
DAC:	32961				
DAC:	44347				

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3. The following window will now appear. This has the same effect as clicking the "Balance" button in previous versions of the Dektak software.

The stylus Force Calibration
Current Force Calibration
Weight: 0 mg DAC: 24000
Weight: 1 rng (1AC: 25973
Weight: 6 mg DAC: 32961
WeCalibrating, please waiter
Auto Calibrate
Done Reset Cancel

4. In about a minute or so, the following window will appear. The Weight 0 DAC count value is what you would have gotten by using the "Balance" button in previous versions of the Dektak software. New DAC values have also been calculated. Click on "Done."

🔷 Stylus Force Calibration 💷 💷 🔤	٢				
Current Force Calibration					
Weight: 0 mg DAC: 23520					
Weight: 1 mg DAC: 25453					
Weight: 6 mg DAC: 32301					
Weight: 15 mg DAC: 43459					
Auto Calibrate					
Done Reset Cancel					

5. Compare these new DAC values to those from the screen capture in item 2. The values here are all slightly lower.

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6. In the Auto Calibrate method of Stylus Force Calibration performed by the Vision64 software, we still begin with the value generated by the Balance function. After that, the stylus force calibration is calculated via a series of percentages based on the previous value.

For example:

The new D0 = the actual measured Balance value.

The new D1 = (the default D1 value)/(the default D0 value) * the measured D0

The new D2 = (the default D2 value)/(the default D1 value) * the calculated D1

The new D3 = (the default D3 value)/(the default D2 value) * the calculated D2

7. How do these calculated values compare to the default values?



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ALTERNATE METHOD:

The Vision64 Dektak XT software will still allow you to do the stylus force calibration using the <u>set of three calibrated weights</u>, as follows.

1. In the "Instrument" tab click "Advanced Setup."



2. That will put you in this window. Click "Advanced."



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3. This is the next window that appears. The values shown below are the <u>Default</u> values. In reality they might not be.

	Ra	adiu	s: 12.5 μ	m	
Calibration Table					
Weight:	0	mg	DAC:	24000	Remove
Weight:	1	mg	DAC:	25973	Remove
Weight:	6	mg	DAC:	32961	Remove
Weight:	15	mg	DAC:	44347	Remove
	-	Add	Weight.		
VDT Force	DAC				Balance Stylus

4. This is the window where you would enter your new Weight and DAC count values obtained through the process of using the three calibrated weights. After that has been done, click "OK." Clicking on "Balance Stylus" will do just that.

🔶 Ao	Advanced Stylus Force Calibration						×
	Stylus Type						
			Radiu	s: 12.5 µ	ım		
	Calibration Table						
	Weight:	0	mg	DAC:	24385	Remove	
	Weight:	1.2	mg	DAC:	27410	Remove	
	Weight:	6.5	mg	DAC:	32760	Remove	
	Weight:	14.96	mg	DAC:	45382	Remove	
			Add	Weight			
	LVDT Force DAC 65535 0 Balance Stylus						
		OK		Reset	Canc	el	

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5. In this window you can use the slider bar as in the previous (32 bit) versions of Dektak software.

Stylus Type				
	Ra	adius: 12.5 μ	m	
Calibration Table				
Weight:	0	mg DAC:	24000	Remove
Weight:	1	mg DAC:	25973	Remove
Weight:	6	mg DAC:	32961	Remove
Weight:	15	mg DAC:	44347	Remove
	4	Add Weight		
LVDT Force	DAC			
0 266	546			Balance Stylus

6. You can also add weights (usually non-zero)

Advanced Stylus Force	e Calibration					
Stylus Type	F	ladiu	ıs: 12.5 μ	m		
Calibration Table						
Weight:	0	mg	DAC:	24000	Remove	
Weight:	1	mg	DAC:	25973	Remove	
Weight:	6	mg	DAC:	32961	Remove	
Weight:	15	mg	DAC:	44347	Remove	
Weight:	0	mg	DAC:	0	Remove	
Weight:	0	mg	DAC:	0	Remove	
		Add	Weight.			
LVDT Force	e DAC				Balance S	Stylus
	ОК		Reset	Canc	el	

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7. By clicking "Remove" you can remove the Weights that had previously been added. (In this case, from six weights back down to four).

Stylus Type					
	F	ladiu	s: 12.5 μ	m	
Calibration Table					
Weight:	0	mg	DAC:	24000	Remove
Weight:	1	mg	DAC:	25973	Remove
Weight:	6	mg	DAC:	32961	Remove
Weight:	15	mg	DAC:	44347	Remove
		Add	Weight.		
LVDT Force	DAC				Palance Studius
					balance stylus
			_		

8. By clicking on "Reset" you will see this window. Click "OK" and the software changes all data back to the default settings.

Confirm	×
Reset force ca	libration?
ОК	Cancel