



M O D E L **K 9 9 1 3 C**

HIGH PRESSURE CALIBRATION WORKSTATION

- Save time and improve efficiency with automated calibration
- Turnkey system includes all needed components
- Dynamically calibrate pressure transducers as they are used in the field
- Improve accuracy by implementing curve fitting to impulse calibration data
- Calibration data allows transducer trending for better instrumentation management
- Create customizable ISO compliant certificates

TYPICAL APPLICATIONS

- Metrology laboratories
- Research & development

DYNAMIC PRESSURE TO 15 000 PSI

The K9913C Dynamic Pressure Calibration System features accurate dynamic calibration of pressure sensors over a midpressure range (200 to 15 000 psi) using a stable tourmaline reference sensor. A pressure impulse is simultaneously applied to both the reference and sensor under test (SUT) to determine the sensitivity of a pressure sensor at a particular amplitude. By varying the amplitude level, the linearity of the SUT can also be determined. Using a high quality data acquisition system, the K9913C automatically measures, stores and reports calibration results on an ISO 17025 compliant calibration certificate.

Dynamic pressure calibration is also available as an option with the 9155 Series Accelerometer Calibration Workstation. Option number 9155D-913 adds the 9913 Hydraulic Impulse Calibrator, sensor, and software verification to the 9155 base system. The PC system controller and data acquisition hardware are core to the base 9155 workstation, while the -913 control software runs integrated with the 9155 user interface and database. Model K9913C01 upgrades a PCB Model 913B02 to a turnkey K9913C.

AUTOMATED IMPULSE CALIBRATION SOFTWARE

A Model 9913C records the instantaneous output of both the sensor under test (SUT) and a piezoelectric reference sensor following an impulse. The peak voltage output of both the sensor under test and reference sensor are measured. Three values (two voltage measurements and the known reference sensitivity) are used to calculate the sensitivity of the sensor under test. The test activity and results are shown in the easy-to-use software:

- Displayed time data allows technician to view waveform and check for anomalies in the hydraulic impulse
- Linearity plot provides an overview of test results in real-time
- Software automatically computes values such as sensitivity, pressure level, and pulse duration
- Results table provides a snapshot of average results for all test levels

IMS Impulse Calibrat	tor - Dynamic Pressure	Ref Max 1.7663	9UT Max 1.39961	SUTMavyRefMax 0.769693				
nsor Under Test	Present Test	Referen		de in IIFSL Previo	us Tests at T	is Level		
Manufacturer PCB	1.87	SUT	- 30000		t (mN) Pr	essure (psi)	PulseDur I	Canal).
			Sensitivity	1412		233.8	5.7700	(au)
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	14-	A	,	1411		227.3	5,7700	
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u Ke-Am	0-			137.01	/2 200	0131	0.2222	3001
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	€ 2900 -			0233.8				
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	Ž 2000-			0196.2				
	8 1800-			0167.2				
	1600 -			859.9				
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(rarameters	1200-							
t Description	1000-							
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erence Level (pg)	600 - F000 8000 10000 12000 1	4000 16000 18000 20000	22000 Dalata Cal	ected Data				
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	Ano 1790 653		Avg Output (nV)	Pressure (psi)				
	- mp 17.0 000	Delete	0.13862	10678.01				
		Sloce D Lenza	_ ~					
Ref Gen SUT Gen	Sensitivity of Reference Level 0.1407 mV/(psi Inte	Slope 0.14073	Serviction Ser	rsitivity Std Dev				

Impulse Calibrator - Pressure Response

9913C calibrates at predetermined levels and calculates linearity over the testing range

SPECIFICATIONS			
Performance (Actuator)			
Manufacturer Model Number	PCB Model 913B02		
Amplitude Range (usable)	200 to 15 000 psi (13.8 to 1034.2 Bar)		
Typical Rise Time	3 ms		
Typical Pulse Duration	6 to 8 ms		
Performance (Ref Transducer)			
Manufacturer Model Number	PCB Model 136A		
Sensitivity (+/- 15%)	0.2 pC/psi (0.029 pC/kPa)		
Measurement Range	15 000 psi (1034.2 Bar)		
Resolution	0.5 psi (3.45 kPa)		
Resonant Frequency	≥ 1.0 MHz		
Linearity	≤ 0.5% FS		

K9913C System (Components		
TMS 9913C [1]	Actuator		
PCB 136A [1]	Reference transducer		
PCB 443B02	Charge amplifier and accessories (QTY. 2)		
PCB 108A04 [1]	Verification pressure transducer		
PC System Controller	Pre-installed software [1]		
	Data acquisition system		
	System acceptance testing		

 ${\tt]1]\ Included\ in\ 9155D-913\ option\ for\ integration\ with\ 9155\ Accelerometer\ Calibration\ Workstation}$

