



World Class Accreditation

The American Association for Laboratory Accreditation

# Accredited Laboratory

A2LA has accredited

## CRYSTAL ENGINEERING CORPORATION

*San Luis Obispo, CA*

for technical competence in the field of

### Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 2<sup>nd</sup> day of September 2009.



  
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Peter Meyer

President & CEO  
For the Accreditation Council  
Certificate Number 2601.01  
Valid to September 30, 2011

*For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.*



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005  
& ANSI/NCSL Z540-1-1994

CRYSTAL ENGINEERING CORPORATION  
 708 Fiero Lane, Suite 9  
 San Luis Obispo, CA 93401  
 Janine White Phone: 805 595 5477

CALIBRATION

Valid To: September 30, 2011

Certificate Number: 2601.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1</sup>:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
DC Voltage – Measure	(0 to 200) mV	0.008 % rdg + 0.009 mV	Fluke 8840A
	(200 to 2000) mV	0.005 % rdg + 0.03 mV	
	(0 to 1 000 000) V	0.004 % rdg + 0.007 mV	Agilent 34970A
DC Current – Generate (-20 to 50) °C	To 111 mA	18 parts in 10 <sup>6</sup> + 200 nA	Krohn-Hite 523
	To 111 mA	0.005 % rdg + 1 µA	EDC 521
Resistance – Generate Fixed Value (Four Terminal)	0.005 Ω	0.2 µΩ	
	100 Ω	0.0042 Ω	
	200 Ω	0.0083 Ω	
	400 Ω	0.017 Ω	

*Peter Abney*  
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II. Mechanical

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments	
Pressure – Gas (-20 to 50) °C	(0 to 65) psia	0.0097 psi	DHI PPC2	
	(0 to 30) psia	0.0036 psi	DHI PPC2+	
	(0 to 60) psia	0.0072 psi		
	(0 to 100) psia	0.012 psi		
	(0 to 300) psia	0.036 psi		
	(0 to 600) psia	0.072 psi		
	(0 to 1000) psia	0.12 psi		
	(0 to 15) psia (0 to 30) psia (0 to 50) psia (0 to 300) psia (0 to 600) psia (0 to 1000) psia	(0 to 15) psia	0.0015 psi	DHI PPC2AF
		(0 to 30) psia	0.003 psi	
		(0 to 50) psia	0.005 psi	
		(0 to 300) psia	0.03 psi	
		(0 to 600) psia	0.06 psi	
		(0 to 1000) psia	0.1 psi	
	(0 to 1500) psia	0.008 % rdg	DHI PPC3	
	(0 to 3000) psia (0 to 6000) psia (0 to 10 000) psia	(0 to 3000) psia	0.45 psi	DHI PPCK+
		(0 to 6000) psia	0.9 psi	
(0 to 10 000) psia		1.5 psi		
(0 to 3000) psia (0 to 10 000) psia	(0 to 3000) psia	0.013 % rdg	DHI PPCH-G	
	(0 to 10 000) psia	0.013 % rdg		
(29 to 1700) psi (50 to 3000) psi (250 to 15 000) psi	(29 to 1700) psi	60 parts in 10 <sup>6</sup>	Degranges DWT	
	(50 to 3000) psi	60 parts in 10 <sup>6</sup>		
	(250 to 15 000) psi	60 parts in 10 <sup>6</sup>		
(10 to 379) kPa (69 to 3800) kPa (0.2 to 21) MPa (1 to 103) Pa (0 to 16) psi	(10 to 379) kPa	13 parts in 10 <sup>6</sup> + 0.2 Pa	PG7601 w/10 kPa/kg PG7601 w/ 100 kPa/kg PG 7202 w/ 200 kPa/kg PG7202 w/ 1 MPa/kg RPM 4	
	(69 to 3800) kPa	20 parts in 10 <sup>6</sup> + 1 Pa		
	(0.2 to 21) MPa	20 parts in 10 <sup>6</sup> + 3 Pa		
	(1 to 103) Pa	35 parts in 10 <sup>6</sup> + 15 Pa		
	(0 to 16) psi	0.01 % rdg		

<sup>1</sup> This laboratory does not normally offer commercial calibration service.

<sup>2</sup> “Best Uncertainty” is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer’s device and to influences from the circumstances of the specific calibration.

