DeFelsko®

Management Procedure 2559
Revision: A
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Date Revised:

Calibration Procedure

PosiTest LPD Low voltage Pinhole Detector

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1 Introduction and UUC Performance Requirements

1.1 This procedure describes the calibration of DeFelsko Corporation PosiTest LPD.

Table 1-1

Models	Measurement Range
PosiTest LPD	80 – 400 kΩ
	9 – 90 VDC

1.2 The unit being calibrated will be referred to as the UUC (unit-under-calibration).

2 Measurement Standards and Support Equipment Performance Requirements

2.1 The UUC accuracy requirements are based upon the published UUC performance specifications.

2.2 The test uncertainty ratio applied in this Calibration Procedure is 4:1 unless otherwise stated.

2.3 The Minimum-Use-Specifications are the minimum test equipment specifications required to meet all the UUC accuracy requirements and the test uncertainty ratio applied.

Table 2-1 UUC Accuracy Requirements and Description

UUC Parameter	Performance Specifications	Test Method
Resistance	80 – 400 kΩ ± 3%	Resistance Decade Box
DC Voltage*	9 – 90 V ± 5%	Digital Multimeter

* Optional calibration

Table 2-2 Minimum Use Specification

Parameter	Range	Accuracy
Resistance	80 – 400 kΩ	0.6 kΩ
DC Voltage	9 – 90 V	0.1 V

Table 2-3 Actual Equipment Specification

Parameter	Range	Accuracy	Manufacturer/Model #'s Applicable
Resistance	0 – 9,999 kΩ	±(0.1% of reading + 0.025Ω)	IET Labs RS-201
DC Voltage	5 – 50 V	±(0.02% of reading + 0.004V)	Keysight U3401A
DC Voltage	51 – 500 V	±(0.02% of reading + 0.04V)	Keysight U3401A

***Caution*:** The instructions in this Calibration Procedure relate specifically to the equipment and conditions listed in Section 2. If other equipment is substituted, the information and instructions must be interpreted accordingly.

Table 2-4 Calibration Environmental and Warm-up Requirements

Measurement Standards & Support Equipment Environmental Requirements:	Temperature: 23 ± 2° C. Relative Humidity: 40 - 60%
Measurement Standards & Support Equipment Warm-up and Stabilization Requirements:	Not Required

3 Resistance Calibration

Note: Review the entire document before starting the calibration process.

3.1 Review the Performance Requirements in Table 5-1.

Note: Whenever the test requirement is not met, verify the results of each test and take corrective action before proceeding.

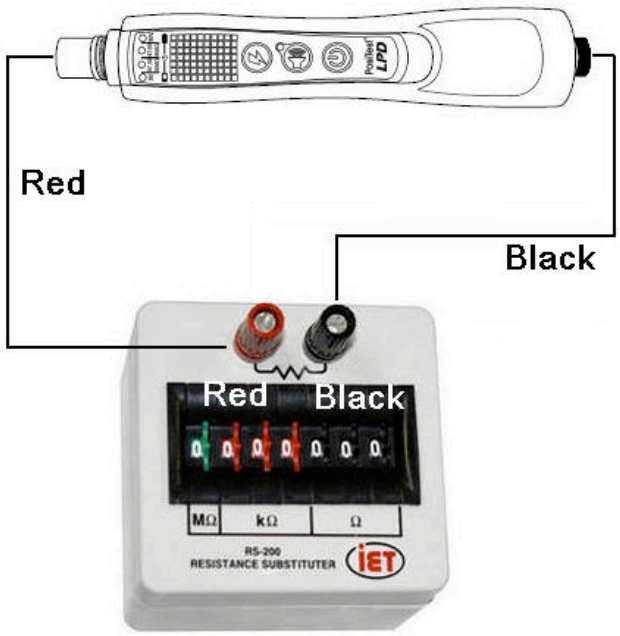
3.2 Turn on the UUC by pressing the ⏻ power button. The unit will complete a self-test indicated by flashing each of the 4 voltage lights. Once the self-test is completed the LED corresponding to the set voltage will flash.

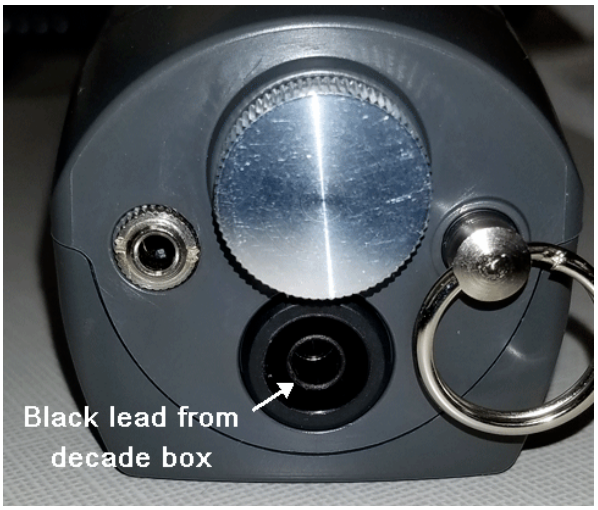
Note: The UUC cannot be connected to the decade box while the self-test is running.

Warning: Touching the metal end of the UUC or of the red lead attached to it while it is on may result in a mild electric shock.

3.3 Connect a red and a black lead to the LPD and the corresponding terminals of the RS-201 decade box as shown below.

Note: The UUC cannot be connected to the multimeter during the resistance calibration.





3.4 Set the UUC to 9V and adjust the decade box to 90 kΩ.

3.4.1 If the UUC is constantly alarming as indicated by flashing the remaining 3 voltage LEDS, increase the resistance on the RS-201, 100 Ω at a time, until the UUC stops alarming or alarms intermittently. Record the last resistance value that the unit alarmed constantly on. Record this value as kΩ. For example 89 kΩ and 700 Ω would be recorded as 89.7 kΩ.

3.4.2 If the UUC is not alarming or is alarming intermittently decrease the resistance value until the UUC starts alarming constantly. Record this resistance value.

3.4.3 Set the UUC to 67.5V, 80 kΩ and adjust the decade box to 80 kΩ. Repeat steps 3.4.1 and 3.4.2.

3.5 Set the UUC to 67.5V, 90 kΩ and adjust the decade box to 90 kΩ. Repeat steps 3.4.1 and 3.4.2.

3.6 Set the UUC to 90V and adjust the decade box to 400 kΩ. Repeat steps 3.4.1 and 3.4.2 but increase the resistance on the RS-201 1 kΩ at a time

4 DC Voltage Calibration*

* optional calibration requiring the use of a calibrated multimeter.

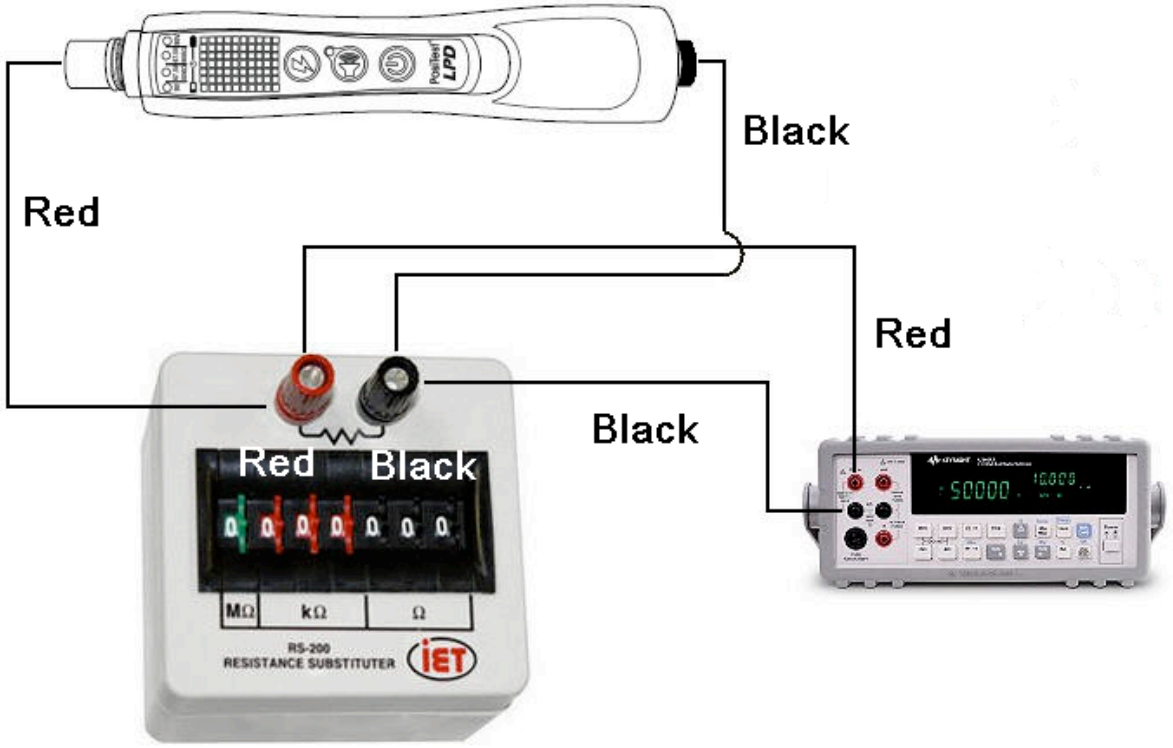
4.1 Review the Performance Requirements in Table 5-1.

Note: Whenever the test requirement is not met, verify the results of each test and take corrective action before proceeding.

4.1.1 Set-up the UUC as described in sections 3.2 and 3.3.

4.1.2 Turn on the multimeter and set it to DC Volts and auto-ranging.

4.1.3 Connect the positive and negative leads from the multimeter to the corresponding terminals of the RS-201 decade box.



4.1.4 Set the UUC to 9V and adjust the decade box to 90 kΩ. Record the voltage displayed on the multimeter to 2 decimal points (xx.xx).

4.1.5 Set the UUC to 67.5V, 80 kΩ and adjust the decade box to 80 kΩ. Record the voltage displayed on the multimeter.

4.1.6 Set the UUC to 67.5V, 90 kΩ and adjust the decade box to 90 kΩ. Record the voltage displayed on the multimeter.

4.1.7 Set the UUC to 90V and adjust the decade box to 400 kΩ. Record the voltage displayed on the multimeter.

5 Performance Requirements

Table 5-1 Performance Requirements and Calibration Data for PosiTest LPD

Parameter	Nominal	Min[1]	UUC Reading	Max[2]
Resistance	90 kΩ (9V)	87.3		92.7
Resistance	80 kΩ (67.5V)	77.6		82.4
Resistance	90 kΩ (67.5V)	87.3		92.7
Resistance	400 kΩ (90V)	388		412
DC Voltage	9V (90 kΩ)	8.55		9.45
DC Voltage	67.5V (80 kΩ)	64.13		70.87
DC Voltage	67.5V (90 kΩ)	64.13		70.87
DC Voltage	90V (400 kΩ)	85.50		94.50

1) Resistance min = nominal value (kΩ) * 0.97
   DC Voltage min= nominal value (V) * 0.95

2) Resistance max = nominal value (kΩ) * 1.03
   DC Voltage max= nominal value (V) * 1.05

Note: Do not write in this procedure.

Management Procedure Change Notice

Procedure Number: MP 2559
Revision Level: A
Date of Change: November 9, 2016
Title: Calibration Procedure, PosiTest LPD Low voltage Pinhole Detector

Reason for Change:
• New product
Description of Change:
• New procedure

I confirm I have read and understand the procedure and the change described above.

Printed Name	Signature	Date

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