700PCK Pressure Module Calibration Kit

Instruction Sheet

Limited Warranty

Each Fluke product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is one year and begins on the date of shipment. Parts, product repairs, and services are warranted for 90 days. This warranty extends only to the original buyer or end-user customer of a Fluke authorized reseller, and does not apply to fuses, disposable batteries, or to any product which, in Fluke's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation or handling. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke does not warrant that software will be error free or operate without interruption.

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Fluke's warranty obligation is limited, at Fluke's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a Fluke authorized service center within the warranty period.

To obtain warranty service, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that service center, with a description of the difficulty, postage and insurance prepaid (FOB Destination). Fluke assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If Fluke determines that failure was caused by neglect, misuse, contamination, alteration, accident, or abnormal condition of operation or handling, including overvoltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components, Fluke will provide an estimate of repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

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Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this Warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

In Case of Difficulty

For service or calibration, call your nearest authorized Fluke Service Center.

To contact Fluke, call one of the following telephone numbers:

USA: 1-888-99-FLUKE (1-888-993-5853)
Canada: 1-800-36-FLUKE (1-800-363-5853)
Europe: +31 402-675-200
Japan: +81-3-3434-0181
Singapore: +65-738-5655
Anywhere in the world: +1-425-446-5500

Or, visit Fluke's Web site at www.fluke.com.

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Introduction

Use this Windows software program and interface unit to verify and calibrate Fluke 700 Series Pressure Modules for zero and span errors at ambient temperature. You will need a pressure calibrator or dead weight tester that is at least 4X more accurate than the pressure module under test.

You do not use a 74x or 75x during this procedure. The PC communicates directly with the pressure module through the interface unit.

Safety Specifications

Designed to IEC-1010-1 Overvoltage Category II, ANSI/ISA-S82.01-1994.

Box Contents

Box contains an interface unit with serial interface cable, serial to USB adapter, software CD, power supply, line cord, soft case, and instruction sheet.

Loading the Software

With Microsoft Windows running, click on the CD/DVD drive where the CD is installed. Double click on the file 7pck.exe. Follow the instructions to load the program onto your PC.

Connecting 700PCK to the Module

Plug the pressure module into the interface unit, connect the interface unit power supply to line power (90 to 270V ac), and connect the USB cable to an available USB port on your PC as shown on the next page. Connect the pressure module to the pressure calibrator or dead weight tester.

In the 700PCK directory, double click on 700pck.exe to start the program. Select the desired communications port under Com Port. Click on Connect. If the connection is not successful, try another Com Port.

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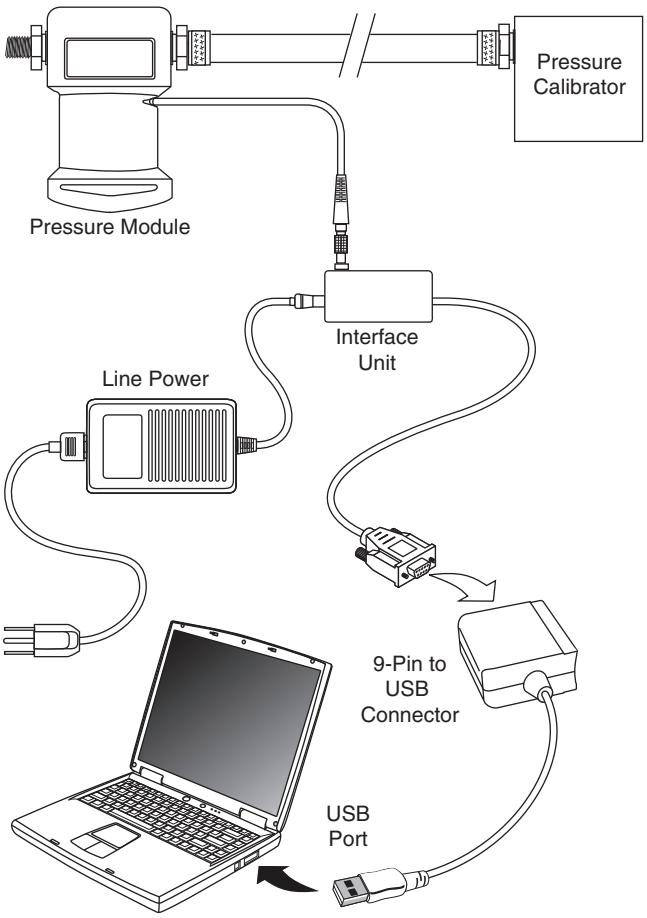

Zero Pressures

In verification and calibration, these instructions refer to a zero pressure.

In verification, for standard (positive-only reading), vacuum, or dual-range modules this is equivalent to venting to the atmosphere. For absolute modules, it is best to apply a known vacuum pressure as low as possible, but any precisely known pressure will work.

In calibration, for standard (positive-only reading) and vacuum modules, the module or pressure calibrator should be vented to atmosphere. For absolute modules, a known vacuum must be applied. For dual or compound-range modules, a negative pressure should be applied that is close to the negative full span.

As Found Verification

Proceed as follows to collect verification data for the module before you adjust it. Before you verify the module, exercise it by applying full scale pressure, then venting to atmosphere. As found data is saved in a file named “nnnnnnn.fnd,” where “nnnnnnn” is the serial number of the pressure module. You can import this file into a database or spreadsheet program.

1. Click on As Found Verification.
2. Apply each requested pressure. Where a zero pressure is called for, refer to Zero Pressures above.

   Wait for the reading to settle (to typically less than 1 count change in 5 seconds) before you go on to each next step.
3. Click on Done to save the data to a text file.

If Verification Fails by More than 1%

If the pressure module is more than 1% out of tolerance, it needs full calibration over temperature at a Fluke Service Center, and possibly repair. Check for tolerance exceeding 1% of full scale by comparing the results of As Found Verification with the pressure module specifications.

Calibration Adjustment

Using the calibration adjustment procedure, you create new calibration coefficients and download them into the pressure module. Before you calibrate the module, exercise it by applying full scale pressure, then venting to atmosphere. Proceed as follows to adjust a module:

1. Click on Calibration Adjustment.
2. Apply a zero pressure (refer to Zero Pressures above).

   Wait for the reading to settle (to typically less than 1 count change in 5 seconds) before you go on to the next step.
3. Apply full scale pressure ±5% as requested by the program. Again, wait for the reading to settle.
4. Test the module by applying any pressure between zero and full scale. The module is now working with the updated constants.
5. In cases where the zero error was large, you may have to perform calibration adjustment twice. To repeat the calibration adjustment, click on Calibration Adjustment again, before clicking on Disconnect.
6. Click on Save to Module to download the new constants and make the changes permanent (until you adjust it again).

As Left Verification

Proceed as follows to collect verification data for the module after you have adjusted it. Before you verify the module, exercise it by applying full scale pressure, then venting to atmosphere. As left data is saved in a plain text file named “nnnnnnn.lft,” where “nnnnnnn” is the serial number of the pressure module. You can import this file into a database or spreadsheet program.

1. Click on As Left Verification.
2. Apply each requested pressure. Where a zero pressure is called for, refer to Zero Pressures.

   Wait for the reading to settle (to typically less than 1 count change in 5 seconds) before you go on to each next step.
3. Click on Done to save the data to a text file.

As found data is stored as "nnnnnnn.fnd" where "nnnnnnn" is the seven or eight-digit serial number. The only difference between "as found verification" and "as left verification" is that the file extension is changed to ".lft". All files are stored in the "data" subdirectory of the working directory.

NOTE

When using the 700PCK with 700P22, 700P23, or 700P24 Pressure Modules, derate module specification to 0.1% if electromagnetic field strength exceeds 2.5 V/m (above 3 V/m not specified).