

Performance Solutions Inc.	Calibration/Calibration Check of Electronic Pressure Transmitter/Indication	CW-003p rev 0
		Effective Date: 2/17/96
	Work Instruction	Page 1 of 4 Attach.: 1

Purpose To perform a calibration/calibration check of a pressure control loop consisting of sensor, transmitter, and/or digital indication(s) and to operationally check alarms and control outputs as applicable.

**Equipment/
materials
needed** These items will be needed for performance of this procedure:

- Regulated air or nitrogen pressure source
- Digital pressure gauge accurate to 0.1% of reading
- Multimeter accurate to 0.1% of reading
- Pressure hoses and fittings capable of withstanding applied pressures

Prerequisites The following prerequisites shall be completed prior to performance of the maintenance item:

- Determine the components of the loop to be checked and record identification (P&ID tag number, bar code number, serial number, or description) in the remarks column.
- Record the required information on the calibration form.

**Initial
conditions** Perform the following prior to testing:

- Ensure associated system is shut down. If this is not possible, the control functions from the instrument loop under test must be placed in manual or disabled to prevent response to test signal simulations.
- Isolate the pressure sensor, if practical, and bleed off pressure in accordance with the site Lockout/Tagout procedure.

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Procedural steps

Follow the procedural steps shown in the table below:

- Do not perform any adjustments until all "as found" calibration data has been recorded.
- Note any deviation from this procedure in the remarks section of the calibration form.
- Procedural steps marked with a pound sign (#) either require information found on the calibration form used for recording data (Attachment A) or require data to be recorded on the calibration form.
- If the loop being checked does not include a component that this procedure is checking, mark the step N/A on the calibration data form.

Step	Action
1	Make connections between the pressure source, pressure standard, and the transmitter input.
2	Connect the digital multimeter to the current output of the transmitter.
3	Exercise the transmitter from zero to full scale and back to zero.
4#	Adjust the pressure (vacuum) source to 10, 50, and 90% of the calibration range and record the following at each data point: <ul style="list-style-type: none"> • Digital pressure standard reading • Current output • Remote indication (if applicable)
5#	Verify proper operation of all control outputs and alarms at the proper setpoints. Record all outputs checked and actual values obtained.

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Procedural steps (cont.)

Step	Action	
6#	If...	Then...
	If transmitter output is not within 1/2 the specified tolerance	Calibrate the transmitter in - accordance with the applicable manufacturers technical manual and repeat step 4.
	If remote display is not within 1/2 the specified tolerance	Calibrate the display in accordance with the manufacturers technical manual and repeat step 4.
	If any alarm or control output operates improperly or does not actuate within 1/2 the specified tolerance	Adjust the output and repeat step 5.
7	Disconnect the test equipment from the unit under test and reinstall, if necessary.	
8#	Complete the calibration form and apply the appropriate calibration label.	
9	If all checks are within tolerance, restore the instruments to operational condition and notify appropriate personnel of work performed.	

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Acceptance criteria

Personnel performing this maintenance shall use the following criteria to determine satisfactory completion, subject to review of data by supervision.

- Final readings obtained are within the tolerance specified on the calibration work order form.

If any readings are found to be out of tolerance or if any step cannot be performed:

- Notify the appropriate personnel for resolution.
- Record name of person contacted in comments section of work order form.

Attachments

The following are attachments to this work instruction:

No.	Title	Pages
A	Calibration/Calibration Check of Electronic Pressure Transmitter/Indication Data Sheet	2

References

Manual No.	Manual Title
N/A	Applicable manufacturer's technical manual

**Approvals/
writer**

This work instruction must be approved by:

 Manager, Performance Solutions

 Date

Writer: Mike Cable, Engineering Technician

**CALIBRATION/CALIBRATION CHECK OF ELECTRONIC PRESSURE
TRANSMITTER/INDICATION DATA SHEET**

<u>Step #</u>	<u>Parameter</u>	<u>Required</u>	<u>As-Found Data</u>	<u>As-Left Data</u>	<u>Tol Code</u>
4, 6	Digital Pressure standard at 10%	NA	_____	_____	_____
4, 6	Transmitter output current at 10%	5.60 ± __ mA DC	_____mA	_____mA	_____
4, 6	Remote Indication at 10%	_____ ± _____	_____	_____	_____
4, 6	Digital Pressure standard at 50%	NA	_____	_____	_____
4, 6	Transmitter output current at 50%	12.00 ± __ mA DC	_____mA	_____mA	_____
4, 6	Remote Indication at 50%	_____ ± _____	_____	_____	_____
4, 6	Digital Pressure standard at 90%	NA	_____	_____	_____
4, 6	Transmitter output current at 90%	18.40 ± __ mA DC	_____mA	_____mA	_____
4, 6	Remote Indication at 90%	_____ ± _____	_____	_____	_____
5, 6	Alarm or control output _____	_____ ± _____	_____	_____	_____
5, 6	Alarm or control output _____	_____ ± _____	_____	_____	_____
5, 6	Alarm or control output _____	_____ ± _____	_____	_____	_____

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Standards Used:

	Description	Serial number or other I.D.	Cal Due Date
1	Digital pressure gauge	_____	_____
2	Milliammeter	_____	_____
3	_____	_____	_____
4	_____	_____	_____

Worse Case Tolerance Code: _____

Remarks:

Performed By: _____ **Date:** _____

Reviewed By: _____ **Date:** _____