STELLAR TECHNOLOGY
INCORPORATED

237 Commerce Drive
Amherst, New York 14228 • USA
Tel: 716.250.1900
Fax: 716.250.1909

info@stellartech.com

stellartech.com

SHUNT CALIBRATION PROCEDURE

1.0 General Information

Shunt calibration is a means by which the span can be monitored and adjusted without performing recalibration of the entire transducer/electronics combination. The shunt calibration procedure has these attributes:

- Allows a given transducer to be used with various signal conditioners without transducer/electronics recalibration.
- Verifies the accuracy of the instrumentation on a periodic basis.
- Provides the ability to compensate for the minor drift that can occur over a period of time, or between the start and finish of critical testing.

2.0 Shunt Calibration Procedure (0-5 or 0-10 VDC Output)

2.1 Refer to calibration certification supplied with transducer for zero reference point, PSIG or PSIA.

2.1.1 PSIG: With hydraulics or pneumatics turned off and the trnasducer process port vented to 0 PSIG, monitor the output signal and adjuist the zero contorl to 0.00 VDC.

2.1.2 PSIA: With hydraulices or pneumatics turned off and the transducer process port evacuated to absolute zero, 0 PSIA, monitor the output signal and adjust the zero control to 0.00 VDC.

2.2 Refer to Certificate of Conformance or Calibration Certification supplied with transducer for shunt calibration percent of Full Scale Output (F.S.O.) value _____

2.3 Multiply shunt calibration percent, (Line 2.2) x signal conditioner output voltage: _____

2.4 Press and hold the "CAL" button and at the same time adjust the span control to the calculated calibration voltage obtained in step 2.3.

2.5 Release the "CAL" button and check the zero reading.

2.6 Reverify zero line 2.1

2.7 Reverify span, line 2.4

2.8 EXAMPLE:

Shunt Calibration Percent x Signal Conditioner Output Voltage = Calibration Voltage

79.50% x 5 VDC = 3.975 VDC

3.0 Shunt Calibration Procedure W/Offset Zero (0.1 to 5.1 VDC Output)

3.1 Refer to calibrartion certification supplied with transducer for zero reference point, PSIG or PSIA.

3.1.1 PSIG: With hydraulics or pneumatics turned off and the transducer process port vented to 0 PSIG, monitor the output signal and adjust the zero control to 0.10 VDC.

3.1.2 PSIA: With hydraulics or pneumatics turned off and the transducer process port evacuated to absolute zero, 0 PSIA, monitor the output signal and adjust the zero control to 0.10 VDC.

3.2 Refer to Certificate of Conformance or Calibration Certification supplied with transducer for shunt calibration percent of span value _____

3.3 Multiply shunt calibration percent (Line 3.2) x span of 5.0 VDC _____

3.4 Add product of line 3.3 to zero pressure voltage value 0.10 VDC (Line 3.1) to determine the calibration voltage ____

3.5 Now press and hold the "CAL" button and at the same time adjust the span control to the calibration voltage obtained at line 3.4. Release the "CAL" button and the voltage signal will return to 0.10 VDC.

3.6 Reverify zero, line 3.1.

3.7 Reverify span, line 3.5.

3.8 EXAMPLE:

(Shunt Calibration Percent x Span) + Zero Pressure Voltage = Calibration Voltage.
(79.50% x 5.0 VDC) + 0.10 VDC = 4.075 VDC

4.0 Shunt Calibration Procedure (4.0 mA to 20.0 mA Output)

4.1 Refer to calibration certification supplied with transducer for zero reference point, PSIG or PSIA.

4.1.1 PSIG: With hydraulics or pneumatics turned off and the transducer process port vented to 0 PSIG, monitor the output signal and adjust the zero control to 4.00 mA.

4.1.2 PSIA: With hydraulics or pneumatics turned off and the transducer process port evacuated to absolute zero, 0 PSIA, monitor the output signal and adjust the zero control to 4.00 mA.

4.2 Refer to Certificate of Conformance or Calibration Certification supplied with transmitter for shunt calibration percent of span value _____

4.3 Multiply shunt calibration percent, (Line 4.2) x span of 16.0mA.

4.4 Add product of line 4.3 to zero pressure current value 4.00 mA (line 4.1) to determine the calibration current _____

4.5 Now press and hold the "CAL" button and at the same time adjust the span control to the calibration current obtained at line 4.4. Release the "CAL" button and the current signal will return to 4.00 mA.

4.6 Reverify zero line 4.1.

4.7 Reverify span, line 4.5.

4.8 **Example:**

(Shunt Calibration Percent x Span) + Zero Pressure Current= Calibration Current.
(79.50% x 16.0 mA) + 4.00 mA = 16.72 mA

5.0 Shunt Calibration Procedure W/Offset Zero (1.0 to 5.0 VDC Output)

5.1 Refer to calibration certification supplied with transducer for zero reference point, PSIG or PSIA.

5.1.1 PSIG: With hydraulics or pneumatics turned off and the transducer process port vented to 0 PSIG, monitor the output signal and adjust the zero control to 1.0 VDC.

5.1.2 PSIA: With hydraulics or pnewmatics turned off and the tmasducer process port evacuated to absolute zero, 0 PSIA, monitor the output signal and adjust the zero control to 1.0 VDC.

5.2 Refer to Certificate of Conformance or Calibration Certification supplied with transducer for shunt calibration percent of span value_____.

5.3 Multiply shunt calibration percent (Line 5.2) x span of 4.0 VDC_____.

5.4 Add product of line 5.3 to zero pressure voltage value 1.0 VDC (Line 5.1) to determine the calibration voltage_____.

5.5 Now press and hold the "CAL" button and at the same time adjust the span control to the calibration voltage obtained at line 5.4. Release the "CAL" button and the voltage signal will return to 1.0 VDC.

5.6 Reverify zero, line 5.1.

5.7 Reverify span, line 5.5.

5.8 **EXAMPLE:**

(Shunt Calibration Percent x Span) + Zero Pressure Voltage = Calibration Voltage.
(79.50% x 4.0 VDC) + 1.0 DC = 4.18 VDC