VIATRAN

TECHNICAL NOTE

MODELS 422/423 HIGH ACCURACY TRANSMITTER WITH SHUNT CALIBRATION FEATURES

Engine Test Solution
Engine test engineers gravitate toward Viatran Models 422/423 pressure transmitter for three main reasons:

Compact size - Models 422/423 have a 7/8" diameter and standard length of 3.78 inches. Small size allows for more sensors to be installed per a finite area, allowing more measurements to be taken and more room in the test cell area for other devices.

High accuracy - Test cells require very precise measurements. The 422/423's piezoresistive sensors with fully compensated programmable electronics provide optional accuracy error as low as ±.04%. Better measurements equate to higher quality data and allows for better understanding of performance tradeoffs when making decisions related to product features and compliance requirements.

Fair price - Models 422/423 offer a simple design targeted to the test cell application. Features that we have been advised aren't a requirement for optimal performance in test cell environments have been pared away in order to achieve a fair price for the performance.

The Issue:
A large engine manufacturer approached Viatran regarding additional options to further enhance 422/423's performance in their test cells.

Much attention is paid in the quality process to the calibration of test equipment. In order to streamline the procedures involved, a review of the QC checks was undertaken. One item identified to improve the process was the ability to verify that the electronics in the sensor are functioning to specification prior to actually submitting the units to pressure in the process. Over time, the customer has determined that regular re-calibration of the sensor is not required, as the "as found" condition of the transducer will pass virtually 100% of the time if the sensor/system passes their QC test. A transmitter with shunt calibration is part of the process that allows for a quick check of the electronics.

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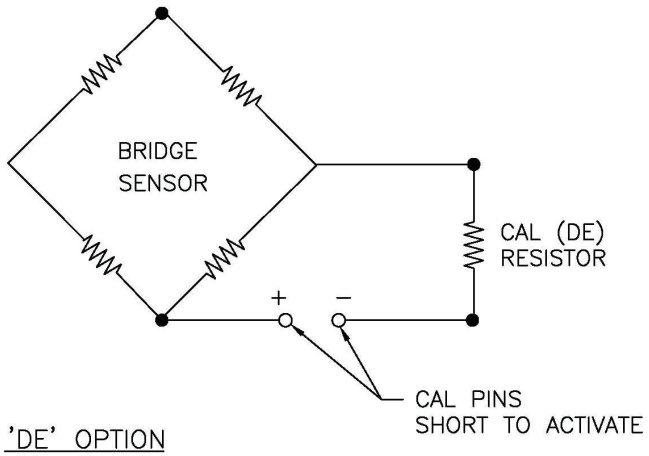
The Solution:
Add three shunt calibration choices to Models 422/423, available as optional upgrades.

Depending upon the need, one of three shunt calibration types is available:

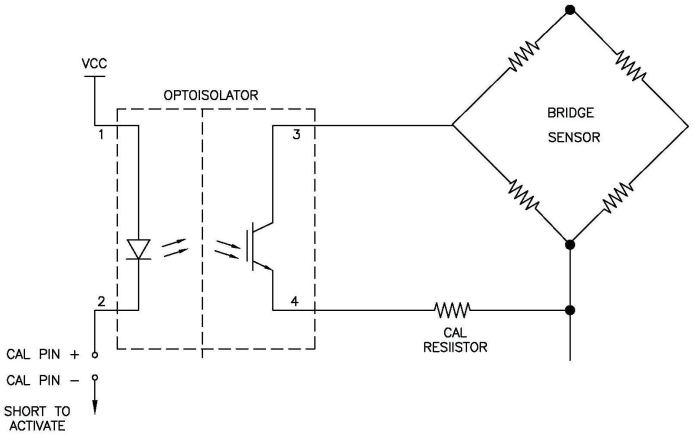
The internal shunt calibration (Code DE) sets a resistance of 80% of FSO on the side of the bridge when the user shorts connector pins 5 and 6. The value for every unit is laser etched on the housing of Models 422/423 for verification purposes.



'DE' OPTION

NOTE:
Internal shunt calibration.

The internal isolated calibration option (Code DA) uses an optoisolator chip mounted on an independent PCB in the transmitter. The board applies voltage to activate the shunt again at 80% of FSO. The isolation of the shunt cal allows for improved noise immunity because it is isolated from the sensor circuit.



'DA' OPTION

NOTE:
Isolated, internal shunt calibration
(6 pin connector required).

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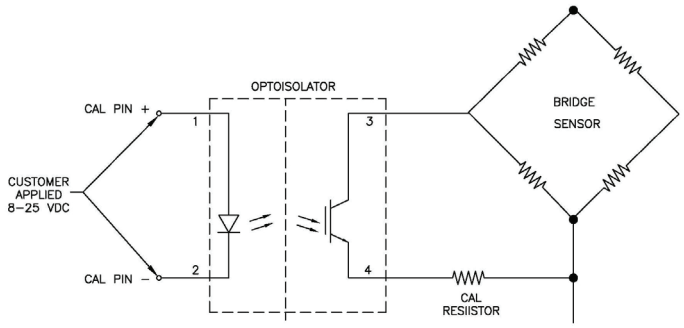
An externally powered optically isolated shunt calibration (Code LV) , uses an isolated circuit to function, but is activated by applied voltage from an external source. Shunt cal value is once again standard at 80% of FSO. The isolated circuit eliminates potentially noise inducing ground loops.



'LV' OPTION

NOTE:
Externally powered, optically isolated shunt calibration (6 pin connector required).

With several shunt calibration options now available for Models 422/423, there is a solution for your individual QC test.

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