AN801: DSCA

Application Note: DSCA Calibration Procedure

1.) Using the module data sheet or module top label, determine the input and output ranges of the module. Connect a precision voltage source, current source, frequency source, RTD simulator, resistance or thermocouple simulator as appropriate to the input of the module. Set the input source to the value shown below.

Model	Input for Zero Calibration	Input for Span Calibration
DSCA30-xx, DSCA40-xx	**0mV** for bipolar output range **-f.s. (mV)** for all other output ranges	+ f.s. (mV)
DSCA31-xx, DSCA41-xx	**0V** for bipolar output range **-f.s. (V)** for all other output ranges	+ f.s. (V)
DSCA32-xx, DSCA42-xx	-f.s. (mA)	+f.s. (mA)
DSCA33-xx **	10% f.s. (VAC or AAC)	+f.s. (VAC or AAC)
DSCA34-xx	-f.s. (°C)	+f.s. (°C)
DSCA36-xx	-f.s. (Ω)	+f.s. (Ω)
DSCA37x-xx, DSCA47x-xx	-f.s. (°C)	+f.s. (°C)
DSCA38-xx	**0mV** for bipolar output range **-f.s. (mV)** for all other output ranges	+ f.s. (mV)
DSCA39-xx	**-25%f.s. (V)** for 4-20mA output range **-f.s. (V)** for 0-20mA output range **0V** for –20 to +20mA output range	+ f.s. (V)
DSCA43-xx	**0V** for bipolar output range **-f.s. (V)** for all other output ranges	+ f.s. (V)
DSCA45-xx	0Hz	+ f.s. (Hz)
DSCA49-xx	**50% f.s. (V)** for 49-04 **0V** for 49-05 **-f.s. (V)** for 49-06	+ f.s. (V)

2.) Locate the required output signal in the table below. Turn the Zero Adjust Potentiometer (marked with the '0' symbol) to obtain the module output shown:

	Bipolar Output	Unipolar Output	4mA to 20mA Output	0mA to 20mA Output
Bipolar Input Range	0.000V	0.000V	4.00mA	0.00mA
Unipolar Input Range	0.000V	0.000V	4.00mA	0.00mA
DSCA39-xx	n/a	n/a	0.00mA	0.00mA

3.) Set the module input source to the positive full scale input value.
4.) Turn the Span Adjust Potentiometer (marked with the two-headed arrow symbol) to obtain the positive full scale module output.

** DSCA33-xx requires the following calibration sequence for non-interactive adjustments.
1.) Set the module input to 10% full scale and record the module output. This is Meas. #1.
2.) Set the module input to 100% full scale and record the module output. This is Meas. #2.
3.) Calculate the required module full scale output as follows:
Required Output = Meas. #2 – 1.1*(Meas. #2 – Ideal Full Scale Output – (Meas. #1 – Ideal 10% Output)
4.) Turn the Span Adjust Potentiometer to obtain the calculated value of Required Output.
5.) Set the module input to 10% full scale.
6.) Turn the Offset Adjust Potentiometer to obtain Ideal 10% output. (i.e. 1V for 0V to 10V output module).

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