
Calibration

This chapter discusses the calibration options for the NI 6703/6704. Calibration is the process of minimizing output errors by making small circuit adjustments. There are two calibration channels used to make adjustments to the voltage channels on the NI 6703/6704. The NI 6704 has two additional channels used to make adjustments to the current channels.

Internal or Self-Calibration

The NI 6703/6704 devices perform continuous self-calibration. In addition to the accessible analog output channels, there are internal calibration channels that are scanned and refreshed with all the output channels. There are two of these calibration channels for the voltage outputs: the voltage offset channel and the voltage gain channel.

There are also two calibration channels for the current outputs on the NI 6704: the current offset channel and the current gain channel. The outputs of these calibration channels are continuously compared to onboard references, and the 16-bit DAC offset and gain are adjusted to minimize the errors in the calibration channels. Since NI 6703/6704 devices have excellent channel-to-channel matching of offset and gain errors, minimizing the errors in the calibration channels also minimizes the errors for all the voltage and current outputs.

External Calibration

The only calibration adjustment you must make is to adjust the values of the calibration channels to account for time- or temperature-related drift of the onboard reference. These calibration values are loaded into nvRAM at factory calibration. You do not need to adjust them for at least one year after the date of factory calibration unless you are operating your device at an extreme temperature.

To perform an external calibration, refer to the *NI 6703/6704 Calibration Procedure for NI-DAQmx*.