

The Use of Instrumentation Amplifiers and Voltage-to-Current Converter In a Process Control : Simulation and Implementation

Title	The Use of Instrumentation Amplifiers and Voltage-to-Current Converter In a Process Control : Simulation and Implementation
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Abstract	<p>Signal in the form of voltage are often need to be transmitted when we deal with measurement. However, voltage signal transmission creates many problems. The series resistance that appears between the output of the signal conditioner and the load produces some voltage drop. Even a few millivolts of the voltage drops could significantly alter the percentage error of the measurement. Current signal is the same everywhere in a series loop. So, by converting the signal into a current and then sending the current signal will assures that the load will receive all of the signal we sent. In this paper, a simulation and an implementation of using instrumentation amplifiers and V-I converter for sending a voltage signal has been conducted. The process variable being measured is a differential pressure that is sensed by a pressure sensor. The output voltage signal was then amplified by an instrumentation amplifier and fed to a V-I converter for transmission purpose. The results is an increase in output current when the pressure was increased. It can be concluded that the instrumentation amplifier and V-I converter are the devices that are properly used for a voltage signal transmission.</p> <p>Keywords : Instrumentation amplifiers, signal transmission, V-I converter, voltage signal, current signal, pressure sensors.</p>
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