



# Simulation of a Temperature Sensor

in a Vibratory Roller Application

## Abstract

This application note demonstrates the implementation of a temperature sensor simulator using the WF 3144 resistor emulator module.

## Problem

To simulate different hydraulic oil temperatures in the design test system for Dynapac's new range of soil rollers.

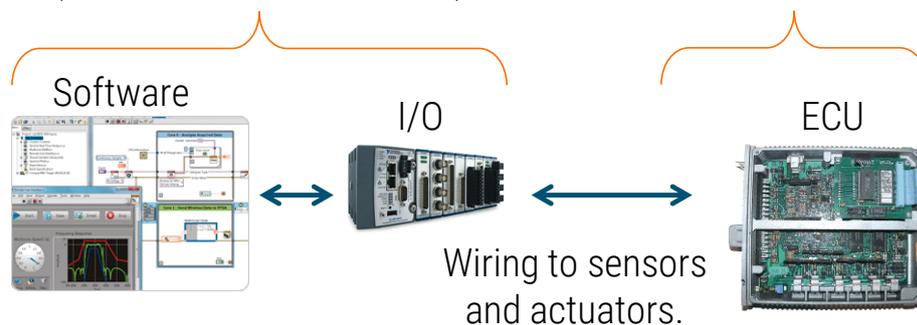
## Solution

The WF 3144 C-Series resistor emulator module contains programmable resistors that are used to simulate the hydraulic oil temperature sensor. The WF 3144 is installed in an NI 9148 cRIO chassis from National Instruments together with other types of I/O modules for complete vehicle simulation.

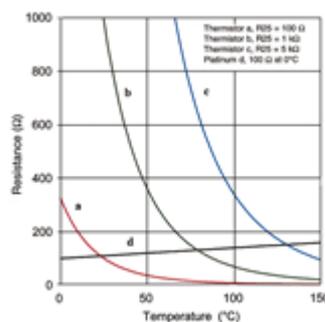


Simulation of vibratory roller  
(via sensors and actuators)

Device Under Test



LabVIEW graphical programming environment and VeriStand real-time testing platform are used to model the dynamic behavior of the vibratory roller. One part of this software is responsible for the hydraulic oil temperature simulation. This sensor simulation software is created by using the data sheet for the actual temperature sensor to find out how the sensor resistance relates to the hydraulic oil temperature. The table of resistance vs. temperature is then programmed into the VeriStand platform by using the LabVIEW driver shipped with the resistor emulator module.



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