Application Note:
How to Display Flow Rate From a DP Transmitter
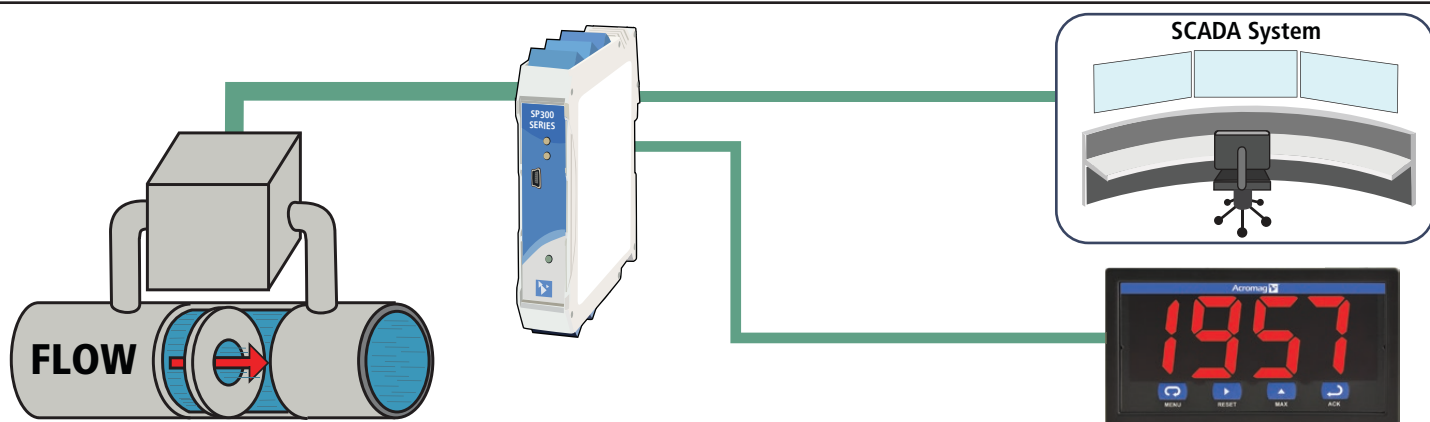### DP Flow via Square Root Extraction

Defining the Problem:

A water treatment facility has differential pressure transmitters that output a 4 to 20mA signal to their SCADA system. They also want to be able to display the flow rate to the operators working nearby but the signal from the differential pressure transmitter is nonlinear.

System Requirements:

The panel meter must be able to perform a square root calculation on the incoming signal to display the flow in gallons per minute. The display also must have large, easily read characters. The signal to the SCADA system cannot be interrupted, even if the display is down for any reason.

Implementing the Solution:

1. Use an Acromag SP336-0700 to split the 4 to 20mA signal which will fully isolate the loop to the SCADA system from the loop to the display.

2. The Acromag VPM3000 panel meter has the ability to extract the square root from a 4 to 20mA signal and display the gal./min. in bright red 1.2" characters. The user selectable Low -flow cutoff feature gives a reading of zero when the flow rate drops below a user selectable value. Options for user settable relay alarm outputs for low and high flow rate are available.

3. The SP336-0700 defaults to 4 to 20mA in and two 4 to 20mA signals out but can be scaled differently with either the Acromag Windows based software or the Agility app.

4. The VPM3000 can easily be configured from the front panel pushbuttons or with Acromag DisplayWizard software.

Featured Products:

VPM3000 Series — Universal Transmitter / Alarm with Display

SP336-0700 — Four-Wire Current / milliVolt Signal Splitter

Notes:

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Why Acromag:

The square root calculation feature saves money since you don't have to buy an additional computation unit. Combining a signal splitter with a panel meter creates a convenient and fail-safe display of the flow rate. Both units are easily configured with Acromag's free software. Plus Acromag guarantees technical support within one business day should a question arise.