

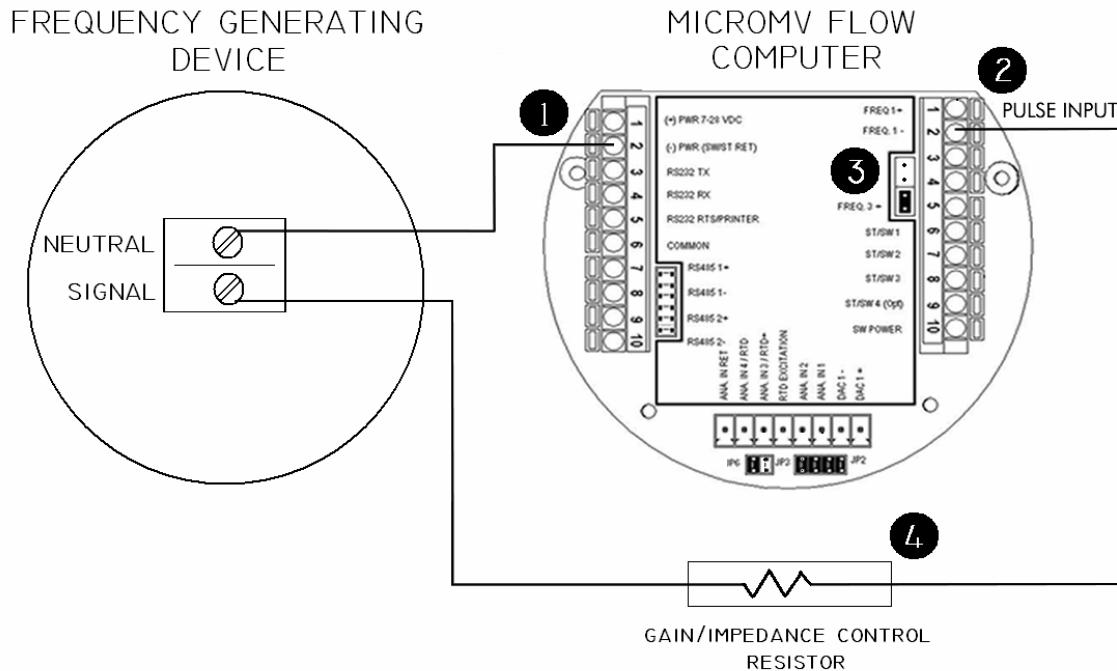
Alternative Frequency Input wiring for trouble signals

Introduction

On normal conditions, a frequency signal can be brought into the MicroMV flow computer by connecting the Signal Positive and Ground terminals of the Frequency generating device directly into the Frequency Plus and minus terminals on the flow computer board to obtain a frequency reading. However, given the variety of manufacturers not all frequency signal are created the same and the standard wiring may not work, the following alternative wiring is used in the following cases:

- Signal amplitude is large (more than 20 Volts).
- Signal is not driven to ground in the off cycle (i.e. signal has a DC Offset).
- Signal generator is sensitive to capacitive load.
- Signal is too noisy (irregular but periodical shape, spikes, negative offset).

The following wiring addresses these issues by eliminating the input capacitive filter, ensuring the signal is pulled to ground when low and providing a way to adjust gain and input impedance by the user.



* Drawing shows wiring of Frequency input 1 but the same applies for Frequency input 2.

Wiring Instructions

From the frequency generating device bring (1) the neutral wire (signal ground) and connect it to the flow computer's power supply return. Connect the Signal terminal into the flow computer's Frequency Input NEGATIVE terminal (2). Remove the Sine/Square jumper as if using the input for sine wave (3). Finally, if needed, add a control resistor to adjust input impedance and amplifier gain.

Control Resistor Selection

Depending on the type of signal problem at hand the control resistor value changes.

If the signal is clean and has good amplitude but is not driven to ground when in the off cycle (i.e. has a DC Offset) there is no need for resistor.

If the problem is that the signal is too large (close or higher than the flow computer's power supply), this will generally make the flow computer read half of the frequency or some other ratio because the amplifier is saturated by the big signal, then use a large resistor to decrease the input gain, on average, 5000 Ohm is a good value to start and it can be larger if the gain needs to be decreased further.

If the problem is that the signal is too noisy or the signal is affected by capacitive load (this usually makes a square signal look skewed or more like a ramp) then the resistor will be used to control the input impedance. In this configuration, the input will have an intrinsic 1000 Ohms impedance. Start with a 1000 Ohm control resistor so the total input impedance is 2000 Ohm and then increase the control resistor if the frequency device is unable to drive this load (you will know this because the square signal will drop considerably when the signal terminal is hooked to the flow computer). Typically a control resistor between 1000 and 2000 Ohms will work for signals of amplitudes between 3 and 5 Volts.