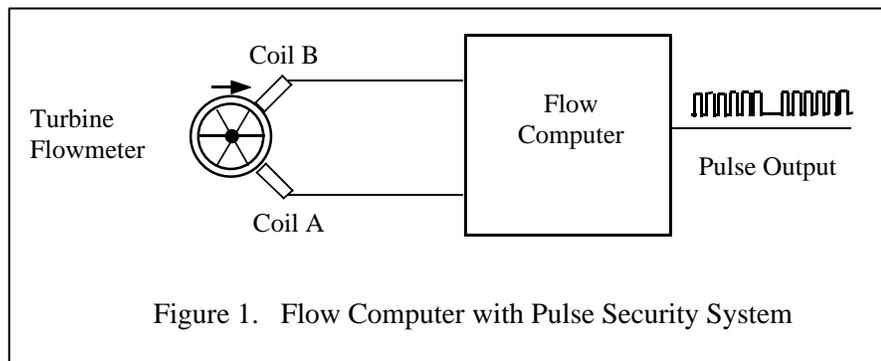


Nova-Flow Pulse Security Option

A transmission line between flow meter pick up coil and an electronic flow computing device is subject to electromagnetic interference (EMI) generated by external electrical sources. The exposure to the EMI may result in injecting faulty pulses into the transmission line which can cause the computing device to calculate an incorrect amount of measured fluid.

Hoffer "Nova-Flow" computers have a Pulse Security option designed to eliminate errors resulting from interfering pulses injected into the transmission line. The Pulse Security option requires using a dual coil meter generating quadrature signals and dual transmission line between meter and a flow computer.

The Pulse Security option has been designed to comply with ISO6551 Level B requirements for pulse transmission lines.

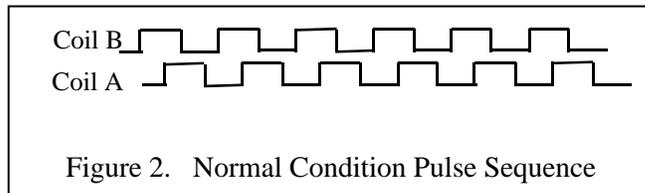


Normal pulse transmission

Under normal operating conditions with no EMI interference there is exactly the same number of pulses generated from coil A and B. For each pulse generated by coil A there is an associated pulse generated by coil B.

Pulses from coil A are lagging behind the pulses from coil B by about 90 degrees of "electrical phase", or a 1/4 of the time period.

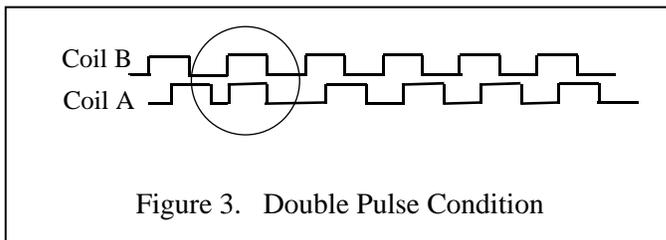
The flow computer checks for presence of each pulse from coil A and B.



Erroneous pulse condition

If external EMI interference generates simultaneous pulses on line A and B the flow computer recognizes erroneous condition as "double pulse" and displays error message "Pulse Failure".

Simultaneous Pulse on Line A and B



If external EMI interference generates additional pulses on either line A and B, the flow computer recognizes erroneous condition as "missing pulse" and displays error message "Pulse Failure".

