



## E-Series Flow Verification

Flow verification of metering pumps is often requested for various reasons, requiring varying levels of criteria and sensitivity. Often, only a basic confirmation that the pump is moving liquid is required to ensure other process parameters are maintained. However, other situations may require actual flowrates of the chemical being pumped for accurate totalization, or possibly the confirmation of feed rates.

Walchem offers several different options for feed or flow verification of the metering pumps ranging from a basic offering up to an accurate flow meter, not only verifying flow, but measuring an accurate flow rate.

### **Basic – The FCM Flow Checker:**

This sensor works on the suction side of the pump. Its design is based on a magnet in the flow path that bounces with each pump stroke. The magnet moves in and out of a Hall Effect Sensor's range, triggering a contact for each pulse of the pump. The theory is that with each movement of chemical the magnet will move, however if the pump is air locked, dead-headed, or there is no chemical in the line, it will not move at all. This signal can be used to count/totalize the strokes and, with a standard pump calibration, totalize the total volume pumped. It can also be used as an alarm if there are no signals fed back but the pump is running. What makes the FCM flow checker different from other 'bouncing magnet' devices on the market is that it is mounted into the suction side of the pump – rendering a more ideal and consistent movement of liquid, not affected by varying back pressures or flowrates.



The FCM Flow Checker will mount onto any of the smaller 09-21 sized E-Series pumps (3/8") and is available in PVC/FKM or PVC/EPDM combinations. The signal can be run directly back into the EWN-Y series pump that has programming to verify actual flow signals to its own operation and alarm as necessary. However, as a dry contact, the signal can also be run in any control devices (PLC, DCS) that can be programmed to use it. Many Walchem controllers also have algorithms built in to take the signal both for totalization and alarm condition monitoring.

More information can be found at: <http://www.walchem.com/products/accessories/FCM.htm>

### **Standard – The PosiFlow FCP sensor:**

This sensor utilizes a piezo-electric pressure sensor (no moving parts) and has signal conditioning built in to filter out the actual pumping pulses from those considered out of range – not enough of a pressure spike and too consistently high a pressure spike. With each pump stroke, there is a pressure profile sent through the discharge line. As long as this pulse rises and falls appropriately, the PosiFlow will send a

corresponding feedback signal. However, if the backpressure drops below the minimum, or each pump pulse does not drive the profile high enough, this indicates that the discharge is no longer into the standard system pressure (air vent knob left open, tubing cut and pumping on the floor, tubing disconnected) and there will be no signals sent. Similarly, in a dead head condition, the pressure in the discharge remains high, not allowing the pressure pulse to rise and fall. This will also indicate an error and the PosiFlow will not signal normally.



The PosiFlow sensor mounts directly on the discharge side of the pump – in place of the E-Series manual air vent knob or in the discharge line with an adapter if there is no knob or is a different pump. It requires 35 PSI of backpressure to function correctly. If system pressure is too low, a high-pressure spring is available for the standard injection valves or a back-pressure valve could be used. The PosiFlow is available in combinations of PVC or GFRPP materials with FKM or EPDM elastomers. The signal can be run directly back into the EWN-Y series pump that has programming to verify actual flow signals to its own operation and alarm as necessary. However, as a dry contact, the signal can also be run in any control devices (PLC, DCS) that can be programmed to use it. Many Walchem controllers also have algorithms built in to take the signal both for totalization and alarm condition monitoring.

More information can be found at: <http://www.walchem.com/products/accessories/posiflow.htm>

### **Best – The EFS Electromagnetic Flow Sensor:**

The EFS Flow sensor is a magnetic flow meter which uses the conductivity of the fluid to measure the flow rate of the pump discharge. As a high-speed pulsating flow, the EFS requires significant signal conditioning for accuracy. This is achieved by the electronics within flow meter and the software in the EWN-Y pumps. The combination of the EFS with an EWN-Y pump provides actual flow RATE information continuously (as an Analog output signal) and can be used to self-adjust the pump! Since it is always measuring the rate within the EWN-Y pump, the actual flow rate is always being compared to the desired rate (manual setting, Analog input, digital input) and the pump will speed up or slow down to match the two. The EFS flow meter is often used on more critical systems such as drinking water chlorination or fluoridation, enabling the pump to self-adjust to the required flow rate and help auto-prime the pump when necessary. It is also used when accurate flow rates or totals are required.



The EFS Flow meter mounts directly onto most EWN-Y pumps models directly below the manual air vent valve. It is available in a PVDF body with options of Titanium or Hastelloy C pin materials and FKM or EPDM seal materials at the connections. The EFS Flow meter can only be connected directly to an EWN-Y pump at this time.

More information can be found at:

[http://www.walchem.com/literature/Pumps/180501\\_EWNY\\_EFS%20Brochure.pdf](http://www.walchem.com/literature/Pumps/180501_EWNY_EFS%20Brochure.pdf)

<http://www.walchem.com/products/pumps/EWN.htm>