

## **Labview based flow rate monitoring and measurement algorithm for rotary encoder**

### **ABSTRACT**

The water usage is increasing twice of the rate of global population growth within the last century. According to the statistical studies, the global population is growing by roughly 80 million people annually, representing increased freshwater demand of around 64 billion cubic meters in the same period of time. This amount of water is being consumed in three fields comprising irrigation 70%, industry 20% and domestic usage 10%. Therefore, monitoring and controlling of natural water resources are counted as two most vital issues in water crisis. For the purpose of control and supervision on natural water sources, the water consumption parameters such as instantaneous consumption, flow rate, and accumulated consumption should be measured and monitored. This paper presents a new monitoring algorithm implemented in Labview to monitor, calculate and plot the mentioned parameters based on the rotary encoders such as electromagnetic, ultrasonic, capacitive, or even hall-effect sensors based. The results show that, the algorithm is capable to measure and display flow rate, instantaneous and cumulative consumption. It is also able to recognise and present the fluid flow direction and the system fault.

**Keyword:** Water measurement; Rotary encoder; Flow rate; Monitoring algorithm