

Vortex Cross Correlation Flowmeter

ABSTRACT

VORTEX CROSS CORRELATION FLOWMETER

A vortex cross correlation flowmeter comprising: an oblong hollow body defining a fluid flow channel therethrough a fluid inlet and a fluid outlet; a bluff body disposed in the fluid channel for generating vortices based on a fluid flow within the flow channel comprising a front face facing the fluid flow, two side faces inclined with respect to the front face and a rear face; a first flow sensor in contact with fluid and responsive to the vortices generated by the bluff body is placed at a predetermined distance from the rear face of the bluff body; a second flow sensor in contact with fluid and responsive to the vortices generated by the bluff body is placed at a predetermined distance from first flow sensor; and an electronic circuit for processing signals from said flow sensors wherein said electronic circuit is configured to: perform spectrum analysis of the signal received from the first flow sensor or from the second flow sensor and compute the number of peaks appearing in the spectrum; decide if correlation computations are to be performed for said number of peaks; perform cross-correlation or auto-correlation of the signals received from the first flow sensor and second flow sensor; and generate output vortex frequency proportional to the flow rate of fluid.

Patent application no. 1763/MUM/2013