1.8.4. MULTIPURPOSE PROGRAMMABLE TRANSDUCERS FOR VIBRATION TESTING OF ROTOR AND PISTON UNITS: THEORY, STRUCTURE, OPERATIONAL EXPERIENCE

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Machinery and mechanical systems face potential failure when their ability to function normally is compromised due to worn components or when their operating conditions diverge from normal. Continuous monitoring of changing vibration helps avoid expensive unplanned shutdowns by detecting machinery faults before they become catastrophic events. It is known that machinery vibration changes when problems such as worn bearings, cracked gears, lack or contamination of lubricant, imbalance, looseness or misalignment occur. For such application a new generation of vibration field programmable and cost-effective sensors has been designed. In a moment the generation consist of the follow two wire loop powered sensors: Reciprocating Machinery Protector, Rolling/Ball Bearing Fault Detector, Overall velocity Vibration Transmitter and Smart Vibration Switch. All units constructed in two pin independent polarity configuration and could work directly with PLC or DCS system. All main parameters and configuration of the units could be programmed by USB programmer. The paper describes the theory of the sensors operations and field application results.