

# Signal Conditioning Unit for Field Deployable Microimpedance Biosensors



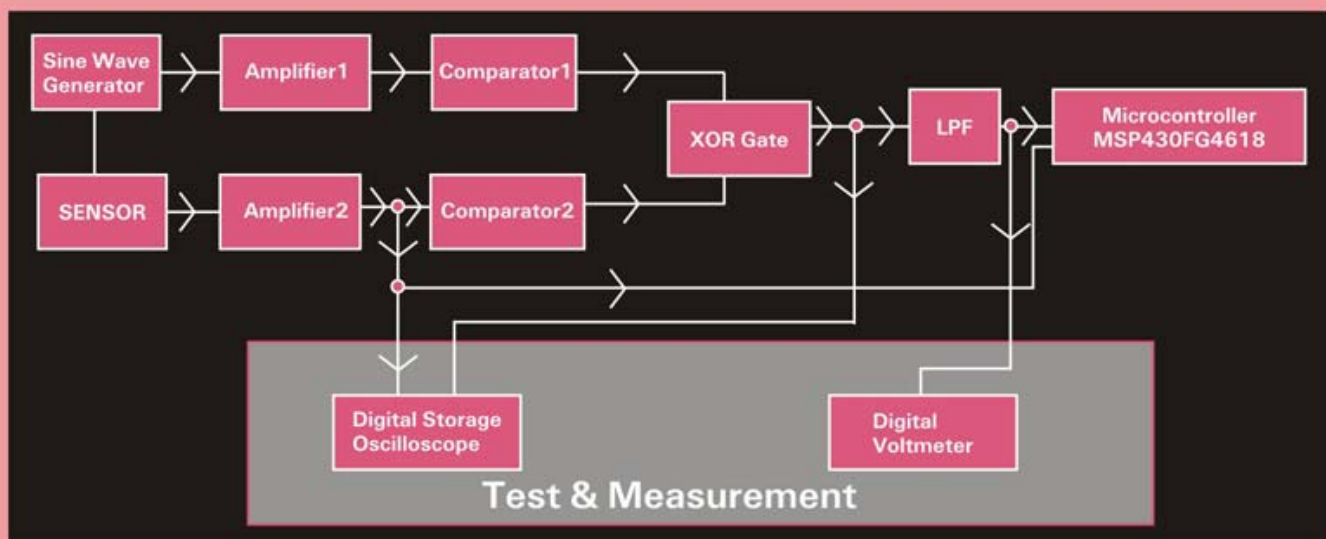
Development of a field deployable signal conditioning unit for microimpedance biosensors which can measure phase as low as  $0.1^\circ$  and/or capacitance with a Q-factor of 0.0015 from 100Hz to 100kHz frequency.

## Salient Features

- >> Portable measurement of low phase of the order of  $0.1^\circ$
- >> Can be operated up to 100kHz unlike the existing handheld commercial LCR meters
- >> Combined impedance and phase detection without the use of additional amplifiers
- >> Display of impedance and phase values with acceptable accuracy after offset compensation

## Various Components used

- >> Amplifier – OPA4376
- >> Comparator – TLV3501
- >> XOR Gate - SN74LVC1G386DBVR
- >> Power Management Chip – TPS63002
- >> Microcontroller - MSP-EXP430FG46 18 Experimenter Board
- >> MSP-EXP430FG46 18 FET



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## TI India Analog Design Contest

