To accurately measure the changes in the sense capacitors, we can apply the synchronous demodulation technique. With the conditioning module located away from the LVDT, it is necessary to have a well-balanced wiring with low distributed capacitance. The synchronous demodulator basically multiplies the amplifier output by the excitation voltage (either Vdrive+ or Vdrive-) to convert the square wave at the amplifier output to a DC voltage that reveals the amount of displacement as well as its direction. When the movable electrode moves closer to one of the fixed electrodes, a larger portion of the excitation voltage from that electrode appears at the amplifier input Vbridge, which means the square 93 wave that appears at the amplifier input is in-phase with the excitation voltage of the closer electrode. A good example is making measurements in harsh environments of radioactive applications where the conditioning circuitry should be placed in safe areas, even up to several hundred meters away from the LVDT.Fig.(5) Synchronous Demodulation In this case, a 1 MHz square wave is used as the AC excitation of the sense capacitors Cs1 and Cs2.