The Block Diagram for the Testing of the Passive Position-sensing Array

CMOS Analog Multiplexer (MAX307)

CMOS Decoders/Drivers

Ripple Counter (DM74LS163A)

Passive Array (Position Sensing)

QA
QB
QC
QD

sg0
sg1
sg2
sg3
sg4
sg5
sg6
sg7

Tip_ref
Sg_ref

Ground

Vdd

BIAS (LabVIEW-generated)

Analog Readout

LabVIEW

tip
curvature
Calibration

Curvature-0
Output voltage array - offset

Curvature-1
Output voltage array

Gauge Factor Array

Special Shape of the Probe
Output voltage array

Radius of curvature array

MatLAB program: Recover the shape of the probe on screen

- Plot: Radius of curvature vs. Sensor position

Measurement