Parasitic Effects in Smart sensor

- Parasitic effect in sensing elements
- Excitation signals for sensing elements
- Square-wave excitation signal preferred
- Signal should be as large as possible
- Avoid undesired electo-physical interaction

Parasitic effects in the sensing element Sensor elements will usually have certain parasitic electrical effects

Parasitic Effects in Smart sensor

- The effect cable and wire impedance
- Avoid impedance of connecting wires and cables affecting the measurement

Analog-to-digital conversion

- Conventional Systems Uses off-the-shelf A/D converter
- More complicated analog front end
- Smart sensor systems
- A/D converter is merged into sub-systems

High accuracy over a wide dynamic range

- Systematic errors
- Filtering
- Separation of common-mode and differential-mode signals
- Proper design
- Random errors
- Calibration
- Sensor-under-test
- Advanced chopping techniques
- Chopping can be applied to reduce random errors also

High accuracy over a wide dynamic range

- Auto calibration
- Eliminates undesired effects of changes in the transfer parameters
- Two-signal or three-signal approach
- Dynamic amplification and division
- DEM Switched Capacitor amplifier

Thank you