o Tranducers convert physical qualities into electrical signals.

General ADC Flow

→ protect ADC from dangerous V's and discharges.

→ multiple A signals, digitize to single ADC core.

→ time to do conversion, signals change during this time. → sample signal and hold until conversion is done.

→ Converts analog to digital

→ Digital values are stored in local buffers before they are transferred to main memory for further buffering and processing.

Amplification: ensure that full-scale analog input result in full-scale digital signal.

ADC Resolution

(unsigned)   (signed).

LSB voltage:

$$V_R = \frac{V_{full-scale}}{2^N}$$

Accuracy
↳ **3 errors**

    1.) Quantization (due to finite resolution)

    2.) Non-linearity

    3.) Apeture error

○ Aperture time:

○ Conversion time:

Sampling Frequency

○ Shannon Nyquist sampling theorem:

○ A/D Converter types:
    ○ Successive approximation → slower
    ○ Parallel → fast and expensive.

ADC 12

(16 independent ADC samples to be converted and stored w/o CPU.)

ADC Resolution

$$V_R = \frac{V_{Full-scale}}{2^N}$$

(unsigned)   (signed).