Sigma-Delta ADC

ΔΣ converter operation with 0 volt analog input

Flip-flop output

0 1 0 1 0 1 0 1 0 1 0 1

Integrator output

ΔΣ converter operation with large negative analog input

Flip-flop output

0 1 0 1 1 1 0 1 1 1 0 1

Integrator output
Sample and Hold

$\nu_C = \nu_{in}$ with S closed

General ADC

| analog signal | low-pass pre-filter dc to $f_s/2$ | Sample and hold | A/D $f_s = \text{sampling frequency}$ | digital signal processing |

$f_s > 2f_{\text{max}}$ where $f_{\text{max}}$ = highest-frequency Fourier component of analog input