IR signal DC coupling & Source Intensity variation compensation from the hardware point of view.
Problems of DC coupling

• IR Signal is always positive

→ Loss of ADC MSB if optimum gain is applied

→ Loss of 1 bit dynamic range (6dB) implies some loss in SNR (-30%)

• Is any compensation possible?
Conclusions

• DAC will restore DC level, dynamic range remains unmodified versus AC coupling
• Filter will keep noise to essentially zero
• Temperature monitoring can help to stabilize compensation (only if necessary)
• Regular DC level checks will probably remain necessary
• Some implementation details and additional features have been omitted here.