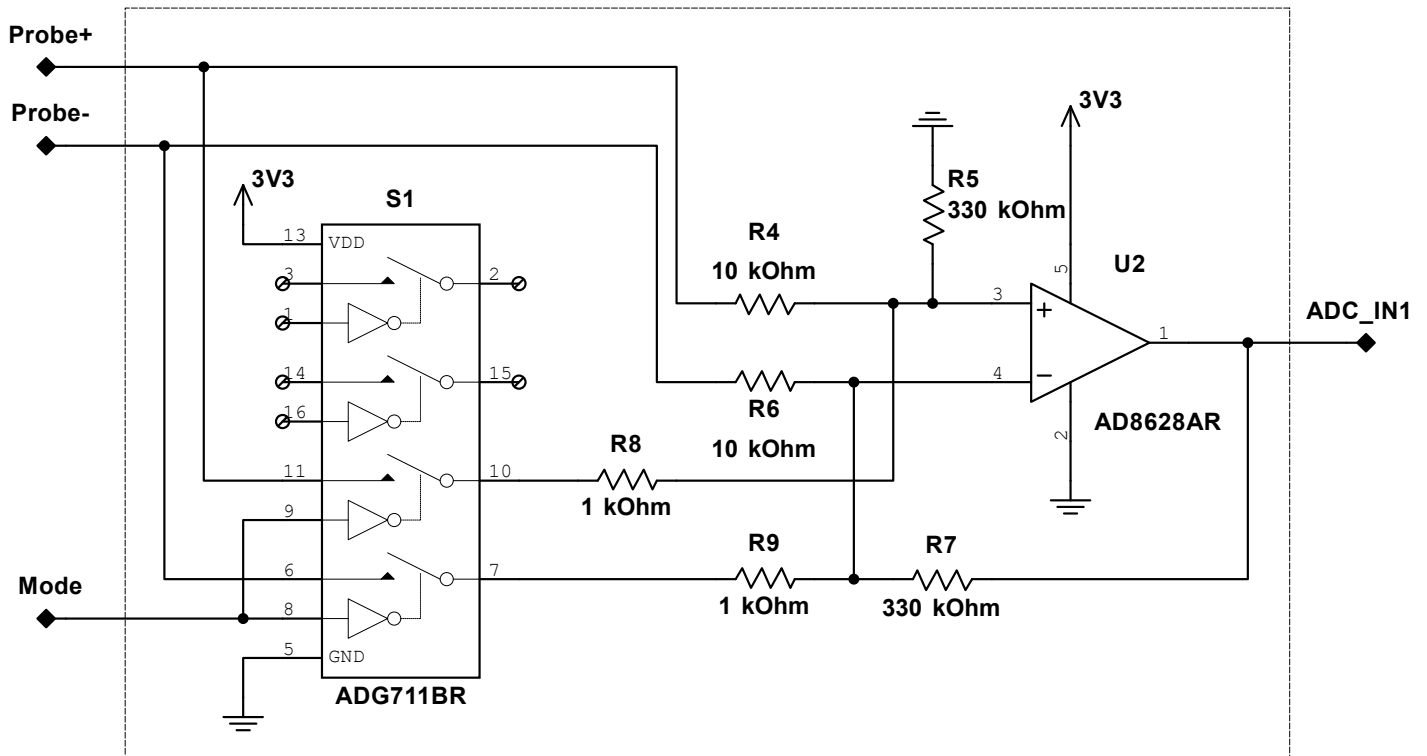
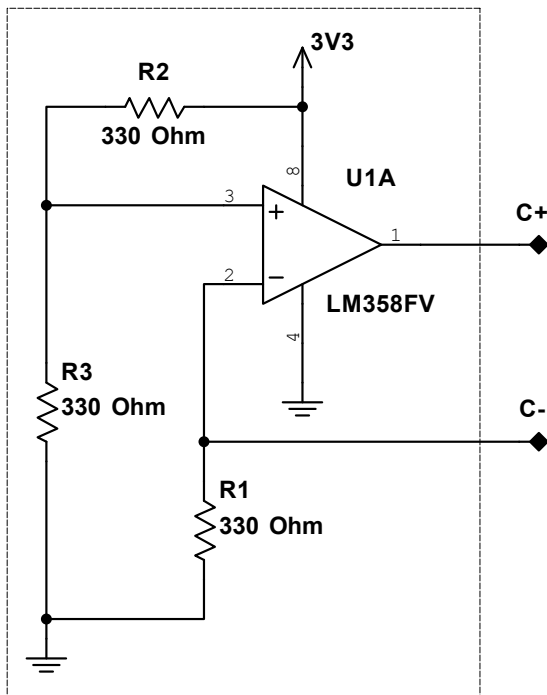


Precision ohmmeter

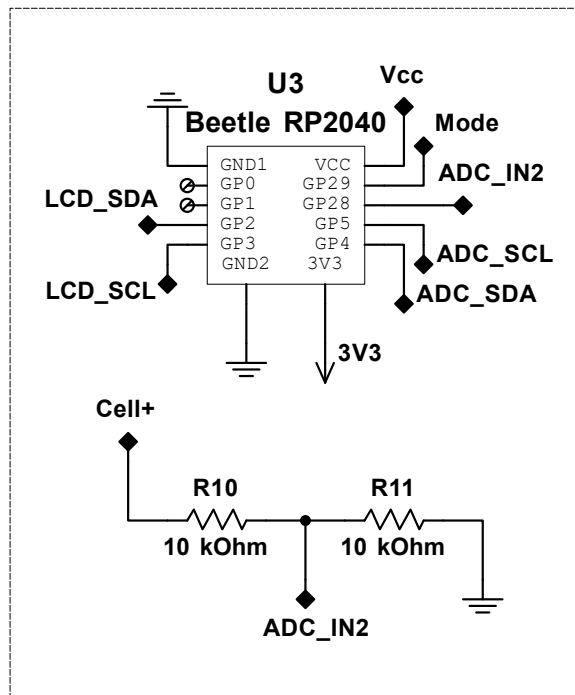
Diff. amplifier (Gain: 33 OR 363)



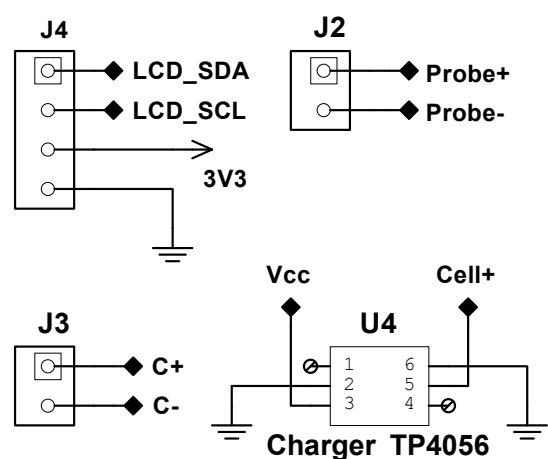
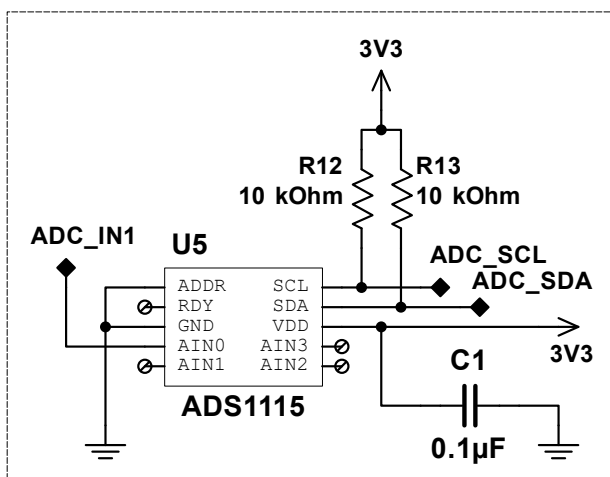
Current source (5mA)



Microcontroller



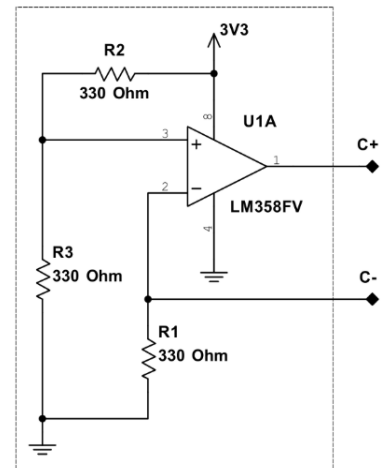
ADC



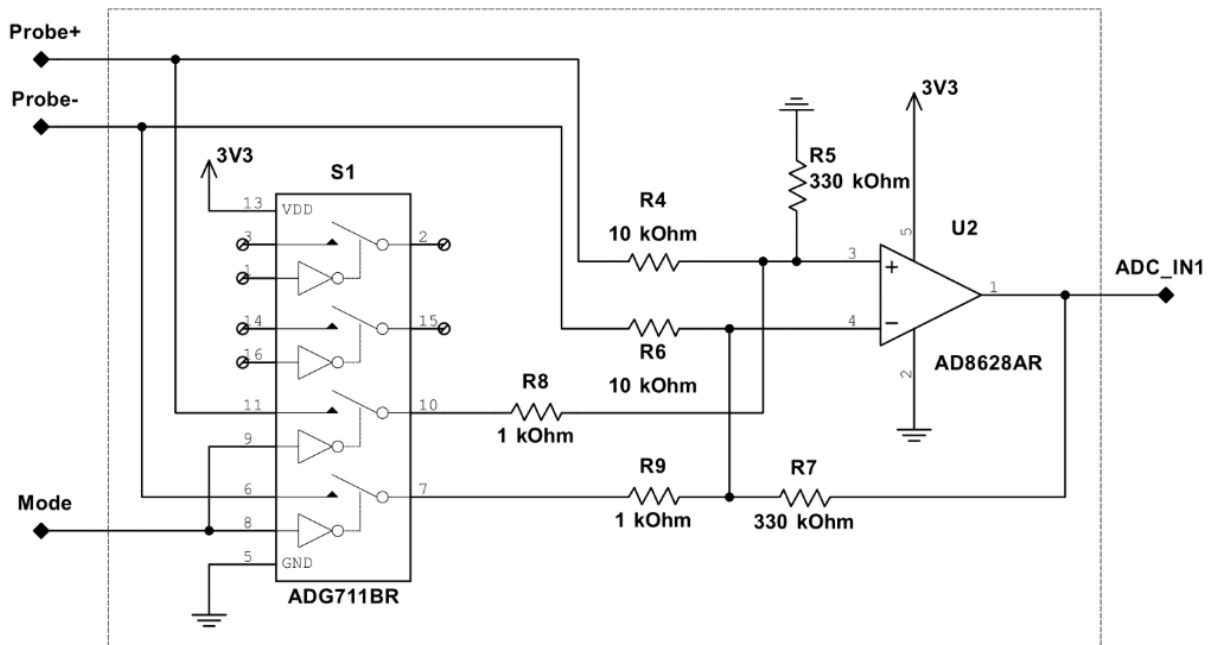
Current source

$$V_{REF} = \frac{R3}{R2 + R3} \cdot 3,3V = \frac{330\Omega}{330\Omega + 330\Omega} \cdot 3,3V = 1,65V$$

$$I = \frac{V_{REF}}{R1} = \frac{1,65V}{330\Omega} = 0,005A = 5mA$$



Differential amplifier



$$R5 = R7, \quad R4 = R6, \quad R8 = R9$$

$$ADC_IN1 = (Probe^+ - Probe^-) \cdot gain$$

Mode 1

$$gain = \frac{R5}{R4} = \frac{330k\Omega}{10k\Omega} = 33 V/V$$

Mode 2

$$\begin{aligned} gain &= \frac{R5}{R4 \cdot R6} \cdot (R4 + R6) = \\ &= \frac{330k\Omega}{10k\Omega \cdot 1k\Omega} \cdot (10k\Omega + 1k\Omega) = \\ &= 363 V/V \end{aligned}$$

