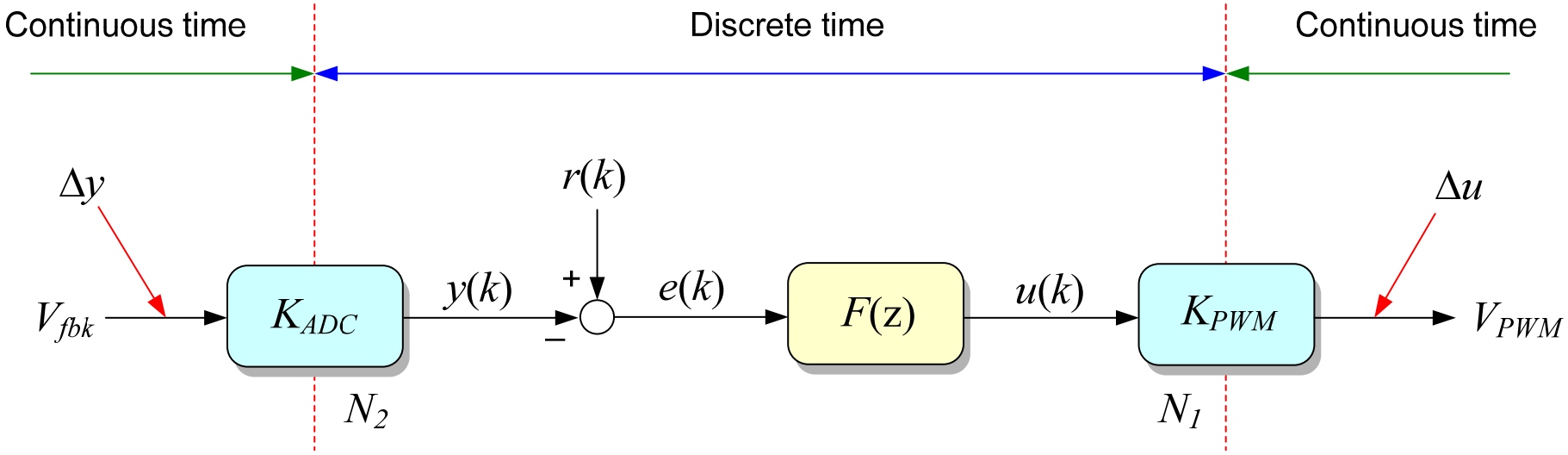
Data Converter Gain



- Quantization takes place at each continuous/discrete boundary. Resolution limits can be referred to the continuous domain by:

$$\Delta y = \frac{V_{y\max}}{2^{N_2}} \qquad \Delta u = \frac{V_{u\max}}{2^{N_1}}$$

- Converter gains are related to quantization limits by:

$$K_{ADC} = \frac{1}{\Delta y} \qquad K_{PWM} = \Delta u$$

- End-to-end controller gain is $K_{ADC} \times K_C \times K_{PWM}$ $\qquad K_C = \left| F(z) \right|$