

Chapter 7

Physical Layer and Transmission Media

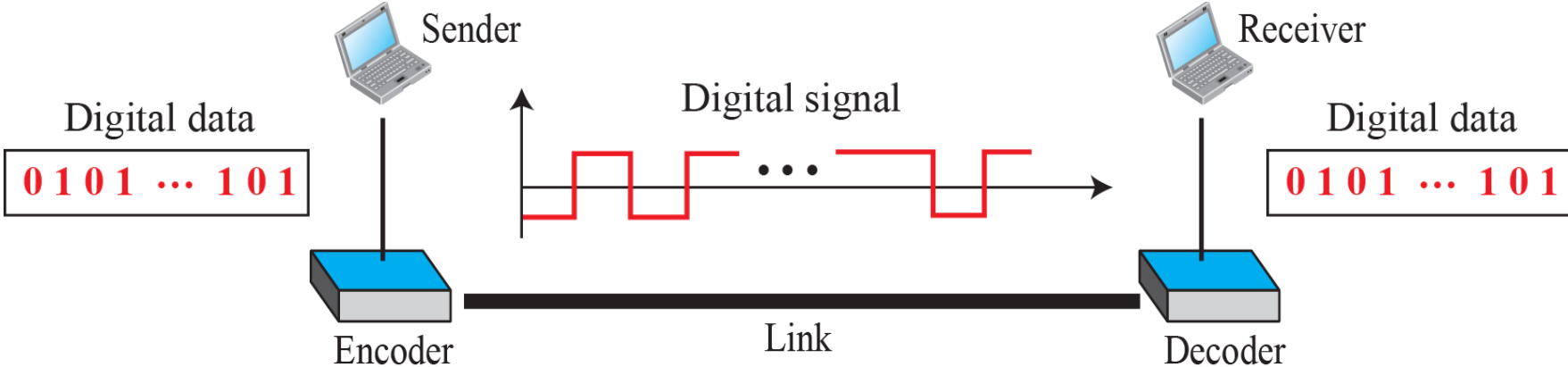
DIGITAL TRANSMISSION

- *A computer network is designed to send information from one point to another.*
- *This information needs to be converted to either a digital signal or an analog signal for transmission.*

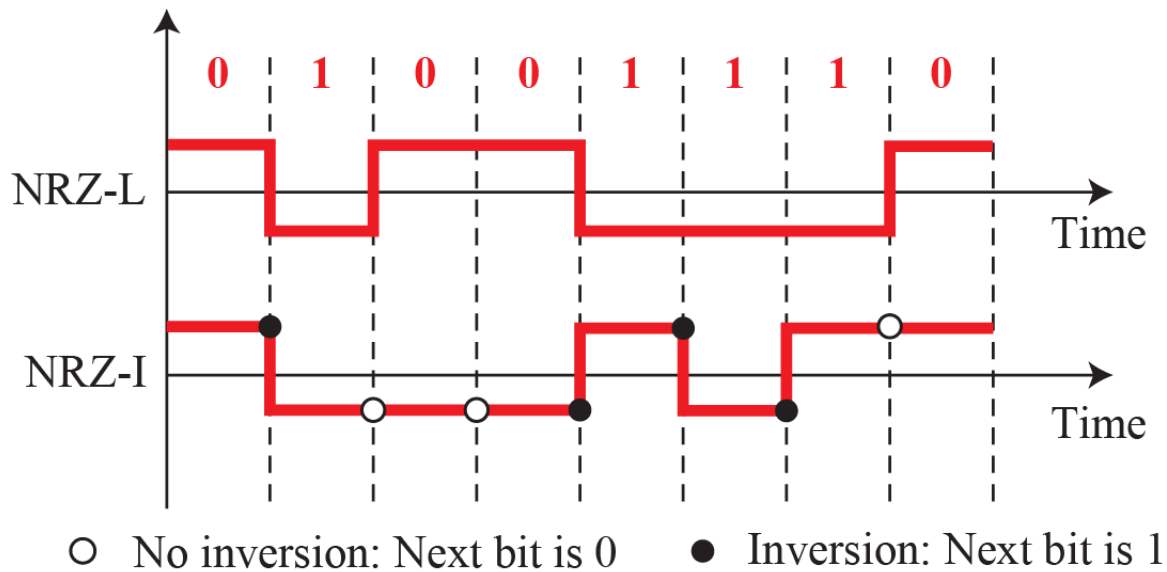
Digital-to-Digital Conversion

- *represent digital data by using digital signals.*
- *The conversion involves three techniques: line coding, block coding, and scrambling. Line coding is always needed; block coding and scrambling may or may not be needed.*

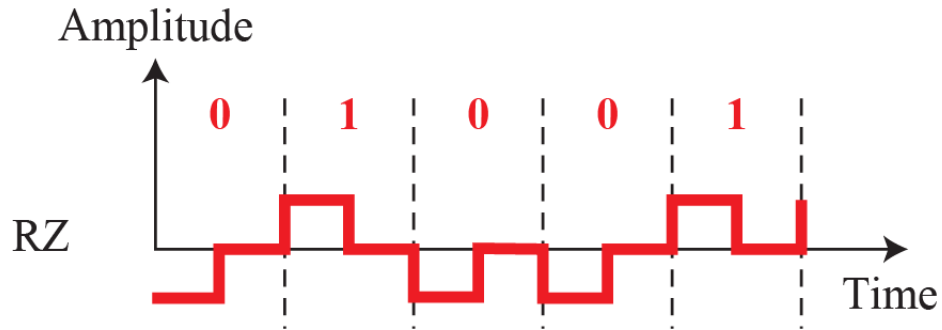
Line coding and decoding



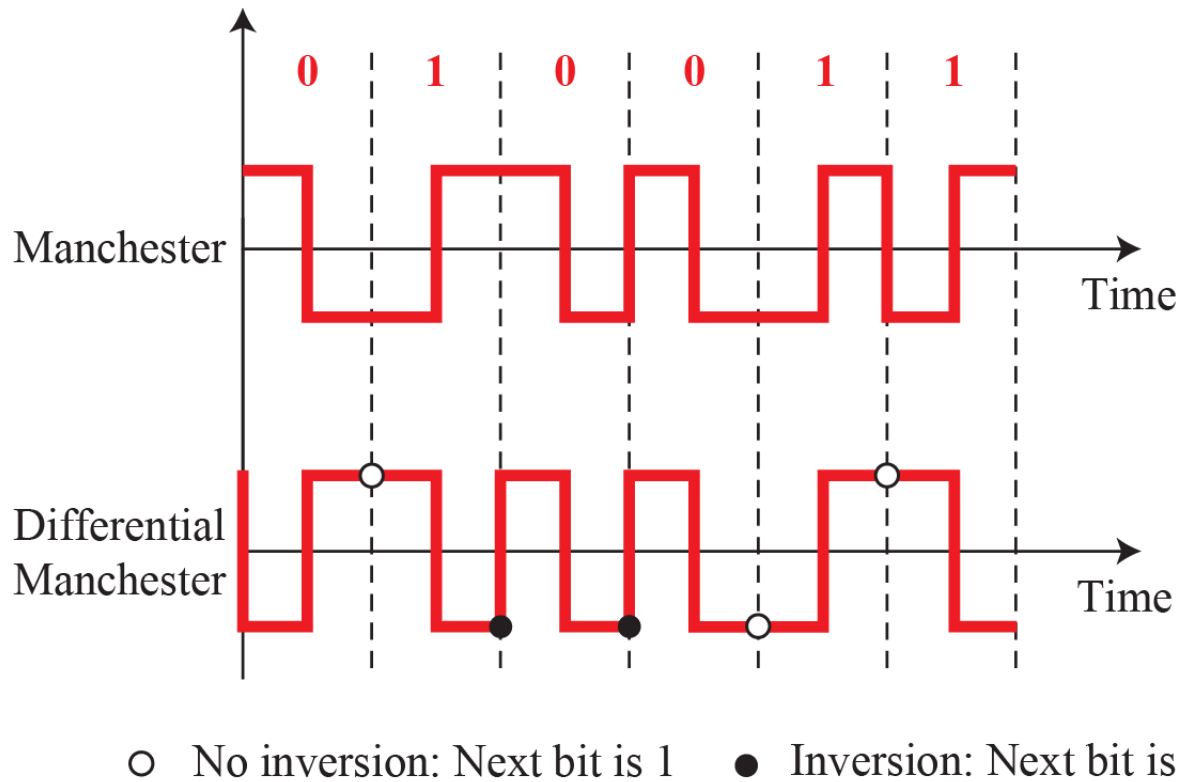
Polar schemes (Part I: NRZ)



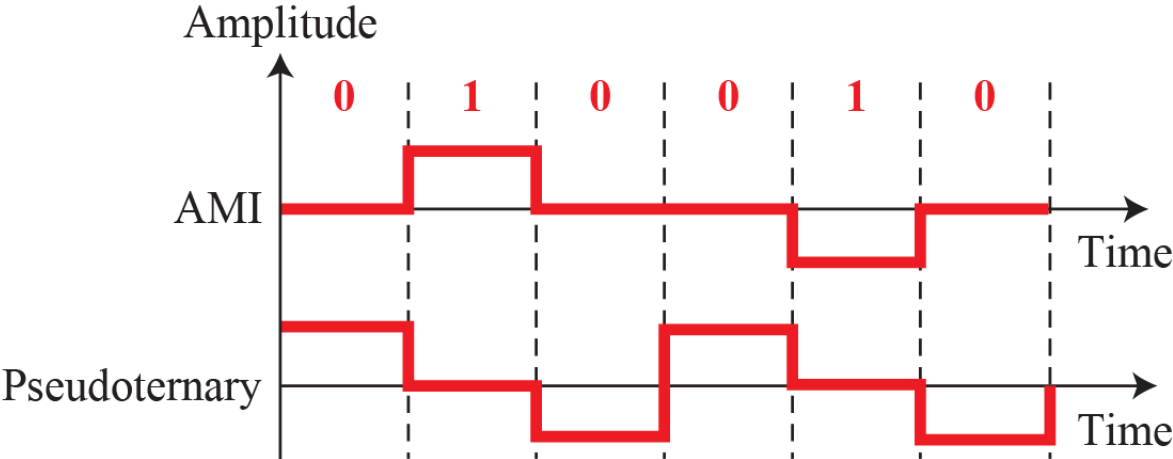
Polar schemes (Part II: RZ)



Polar schemes (Part III: Manchesters)



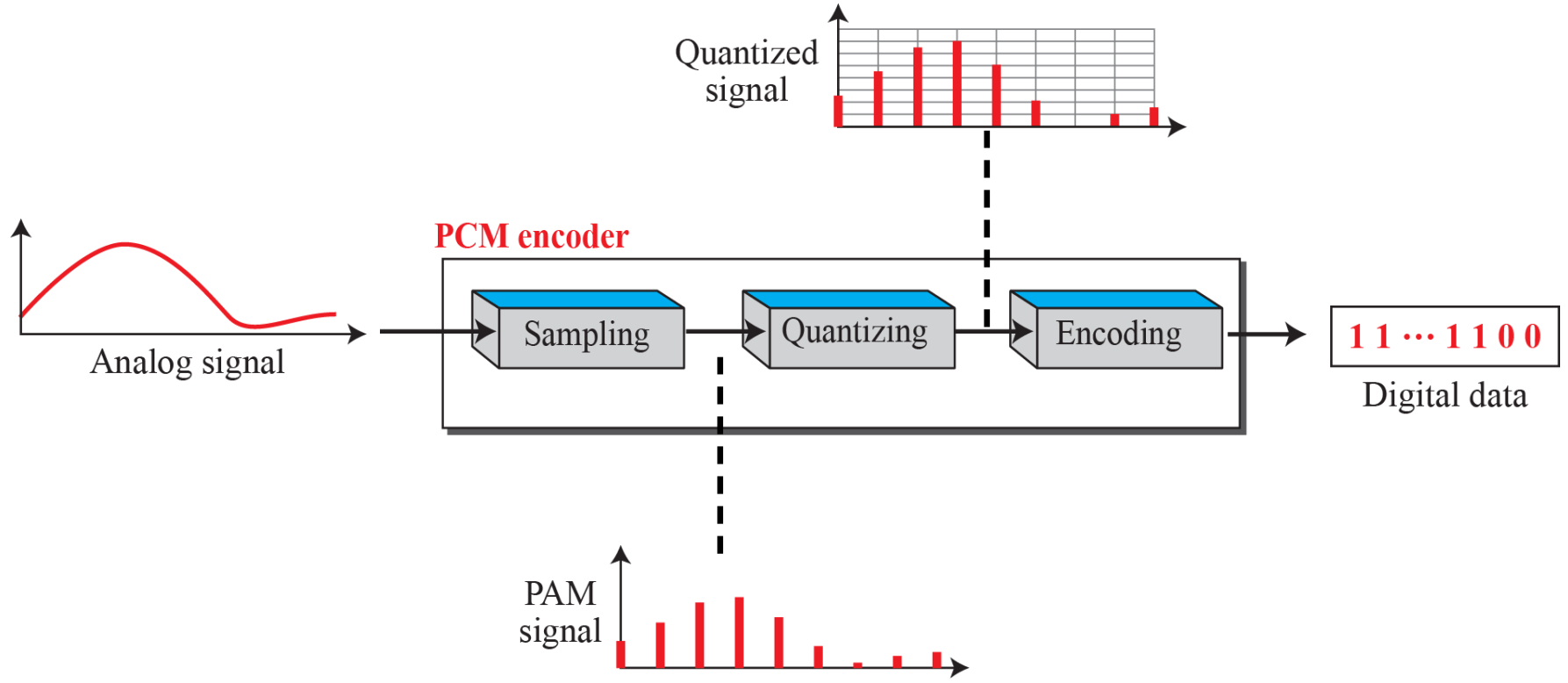
Bipolar schemes: AMI and pseudoternary



Analog-to-Digital Conversion

- *change an analog signal to digital data because the digital signal is less susceptible to noise.*

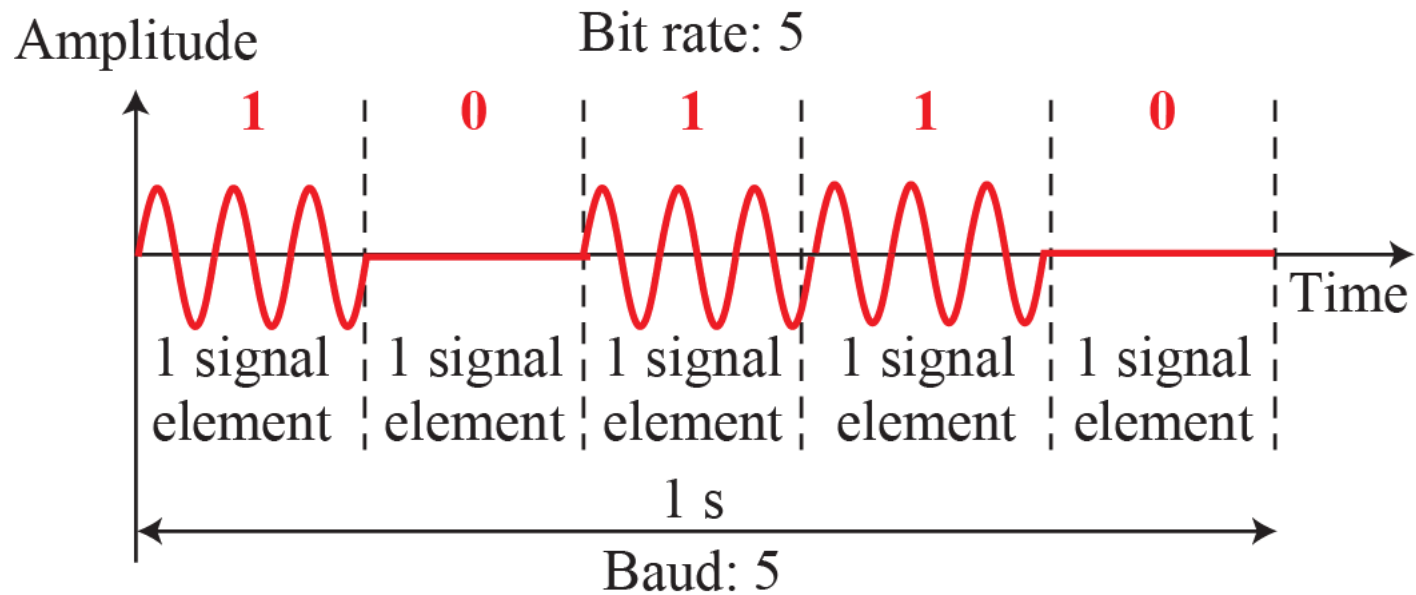
Components of PCM encoder



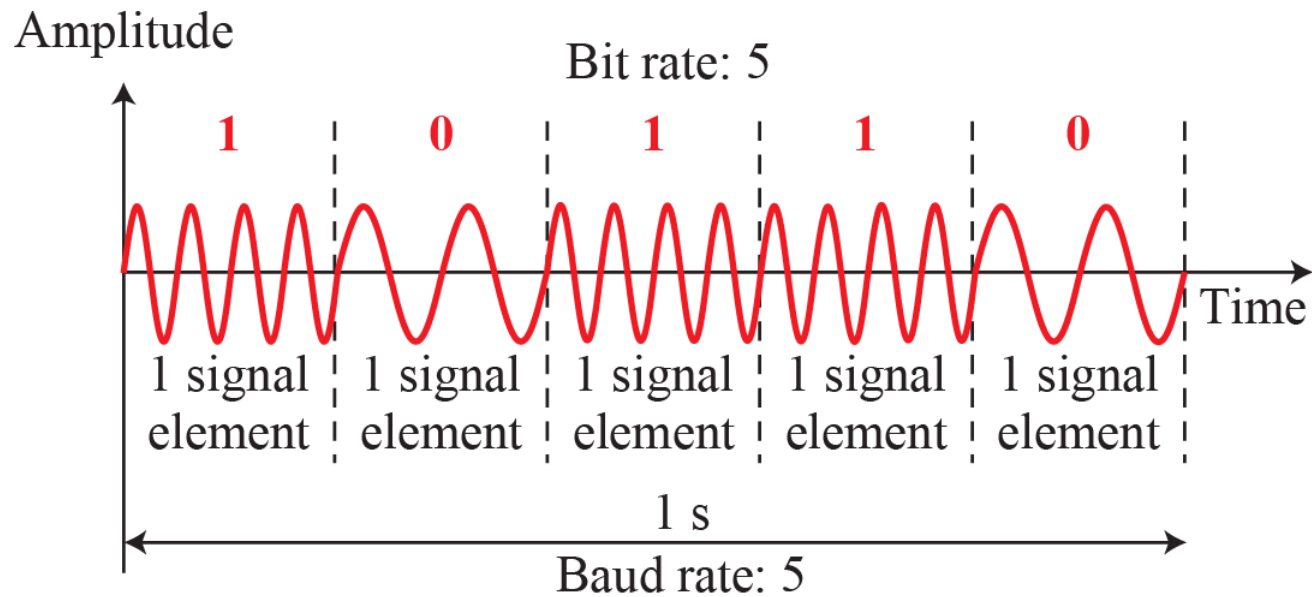
Digital-to-Analog Conversion

is the process of changing one of the characteristics of an analog signal based on the information in digital data.

Binary amplitude shift keying



Binary frequency shift keying



Binary phase shift keying

