

Data Communications



Lecture contents

- Signals
- Analog and Digital
- Analog and Digital Data & Signals

Signals

- Generally, the information is not in a form that can be transmitted over a Link
- The binary digits must be converted into a form that Transmission Medium can accept
- The data stream of 1s and 0s must be turned into Signals

Definition of Signal

A series of waves that carry a sound, picture, or other information.

Analog

- ANALOG

Refers to something that is Continuous

- CONTINUOUS

A set of specific points of data and all possible points between them

Digital

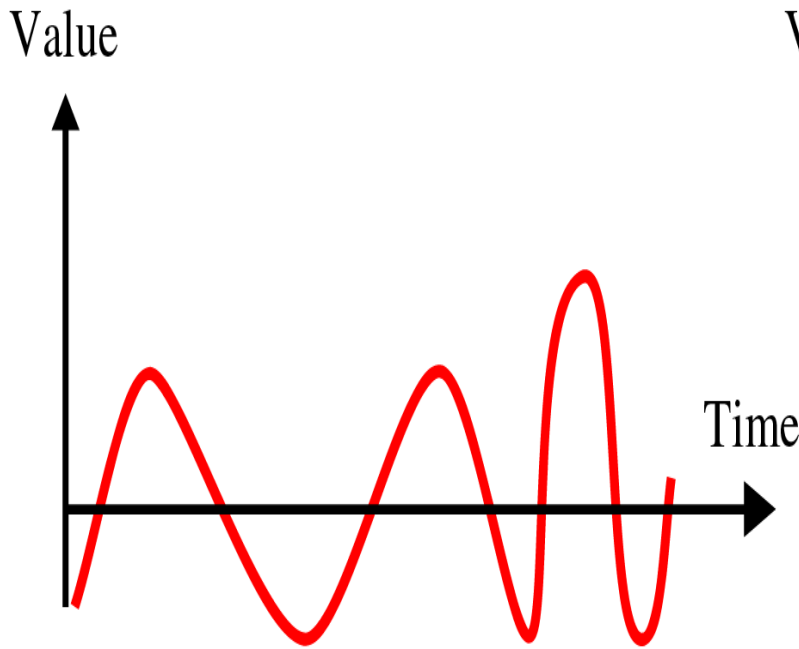
- DIGITAL

∞ Refers to something that is Discrete

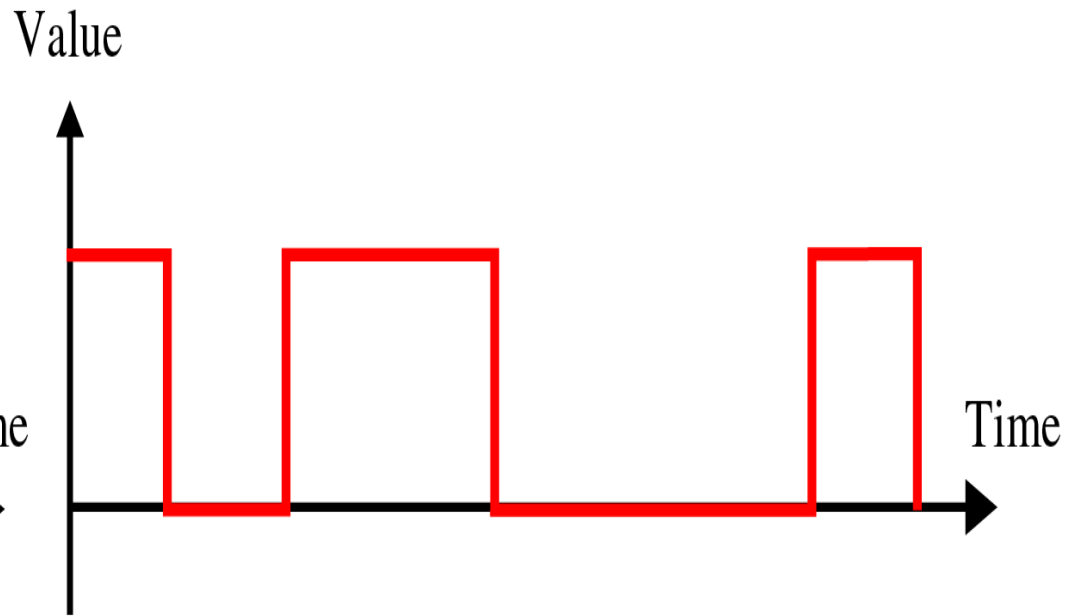
- DISCRETE

A set of specific points of data with no points in between

Analog and Digital Signals



a. Analog signal



b. Digital signal

Analog Signal:

It is a continuous waveform that changes smoothly over time

Digital Signal

A digital signal is discrete. It can have only a limited number of defined values, often as simple as 1s and 0s

Analog and Digital Data

- ◆ Analog Data
 - Human Voice
- ◆ Digital Data
 - Data stored in the memory of a computer

Table; Four combinations of data and signals

Four Combinations of data and signals			
Data	Signal	Common Devices	Common Systems
Analog	Analog	Radio tuner TV tuner	Telephone AM and FM radio Broadcast TV Cable TV
Digital	Digital	Digital Encoder	LAN networks
Digital	Analog	Modem	Digital Broadcast TV Cable modems
Analog	Digital	Codec	Music Systems

Conclusion

- Signal
- Analog and Digital
- Analog Signal
- Digital Signal
- Analog Data
- Digital Data

Questions? **?**