Digital To Digital Encoding

Data & information can be stored in 2 ways
Analog & Digital

⇒ To transmit data digitally, it needs to be first converted to digital form.

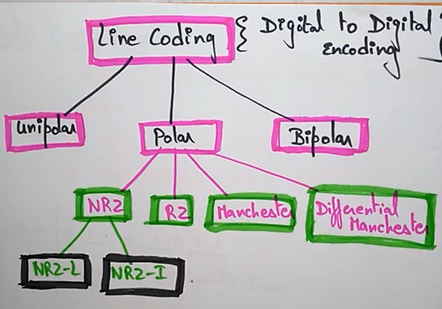
Digital to Digital Encoding & Conversion means
Convert digital data into digital signal

⇒ This conversion can be done in 2 ways
★ Line Coding

★ Line Coding :-

The process for converting digital data into digital signal is said to be line coding.

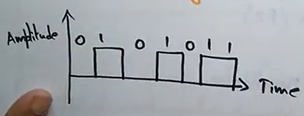
Digital Data - found in binary format
Digital Signal - is denoted by discrete signal.



Uni Polar Encoding :-

- use single voltage level to represent data

1- high voltage is transmitted
0- no voltage is transmitted

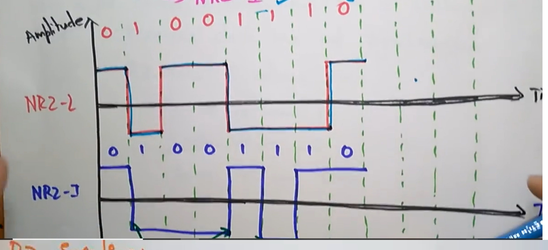


Polar Encoding :-

uses multiple voltage levels to represent binary values.

⇒ It is available in 4 types
① Polar Non-Return to zero (NRZ)
② Return to zero (RZ)
③ Manchester
④ Differential Manchester

NRZ :- It uses 2 different voltage levels to represent
It has 2 varients
→ NRZ-L — (Level signals)
→ NRZ-I — (Signals gets inverted)



RZ- Encoding :-

Problem with NRZ is that receiver cannot conclu when a bit ended & when next bit is started, in case sender & receiver's clock are not synchronized.

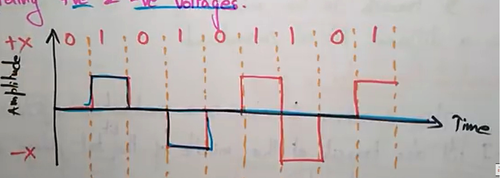
RZ uses 3 voltage levels.
+ve vol — 1
-ve vol — 0
zero vol — none

Manchester :-

This encoding scheme is a combination of RZ and NRZ-L. Bit time is divided in two halves.

It transits in the middle of the bit & change phase when a different bit is encountered.

Bipolar Encoding :-

uni, Polar, bipolar

It uses 3 voltage levels, +ve, -ve & zero.
zero voltage represents binary 0 & bit 1 is represented by alternating +ve & -ve voltages.