

**CAN**

**CAN**open®

**DeviceNet**  
ODVA

**CAN**

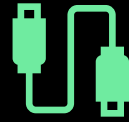
Peter

Kevin

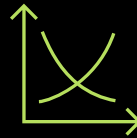
Vegard

Joar Matias

# Overview



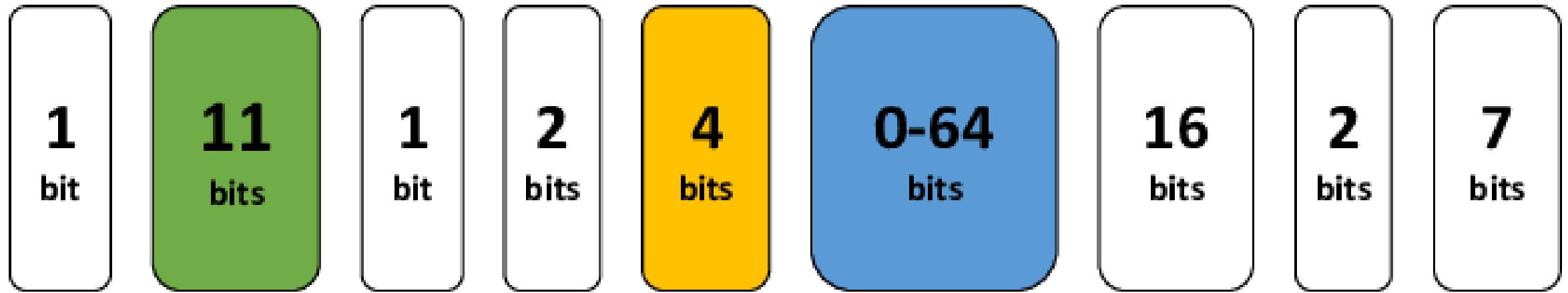
Serial BUS



Differential Signal



Asynchronous



**SOF**  
Start of  
Frame

**CAN ID**  
Message  
Identifier

**RTR**  
Remote  
Trans-  
mission  
Request

**Reserved**

**DLC**  
Data  
Length  
Code

**Data**

**CRC-15**  
Cyclic  
Redundancy  
Check

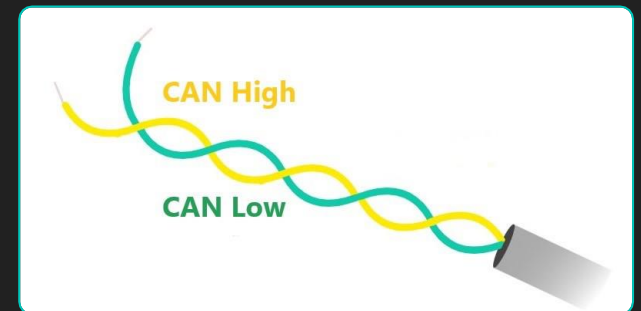
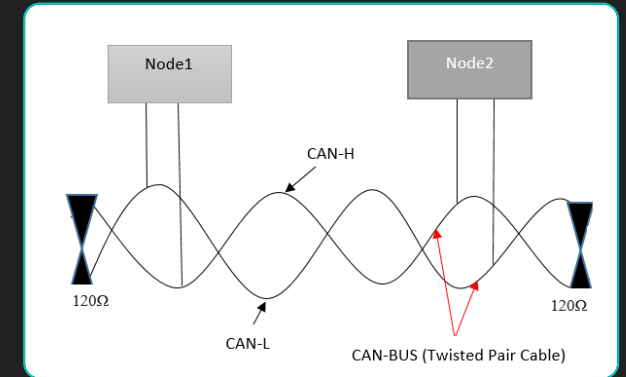
**ACK**  
Acknow-  
ledge-  
ment

**EOF**  
End of  
Frame

**Data Link Layer**

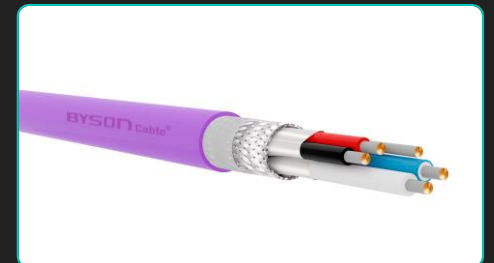
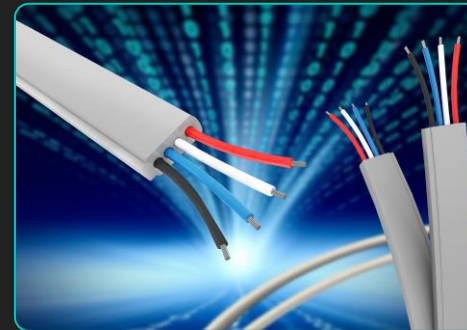
# Wiring Can Bus / Can Open

- Twisted Pair Cable – 120 Ohms
- Standard?
- D-Sub 9-Pins connector



# Wiring DeviceNet

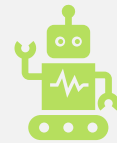
- Thick Round Cable, Thin Round Cable, Flat Cable
- Maximum Drop Length, Cumulative Drop Length
- Mini & Micro connectors



# DeviceNet / CANOpen



DeviceNET – Industrial



CANOpen – Device  
profiles

# Transmission speeds



CAN/CANopen

DeviceNet

# Transmission speed tables

Cable Type	125 kbps	250 kbps	500 kbps
Thick Round Cable	500 m	250 m	100 m
Thin Round Cable	100 m	100 m	100 m
Flat Cable	420 m	200 m	75 m

Source

Bus Length	Bus Speed
25 m	1 mbps
50 m	800 kbps
100 m	500 kbps
250 m	250 kbps
500 m	125 kbps
1000 m	50 kbps
2500 m	20 kbps
5000 m	10 kbps

Source: CiA 301



# Limitations

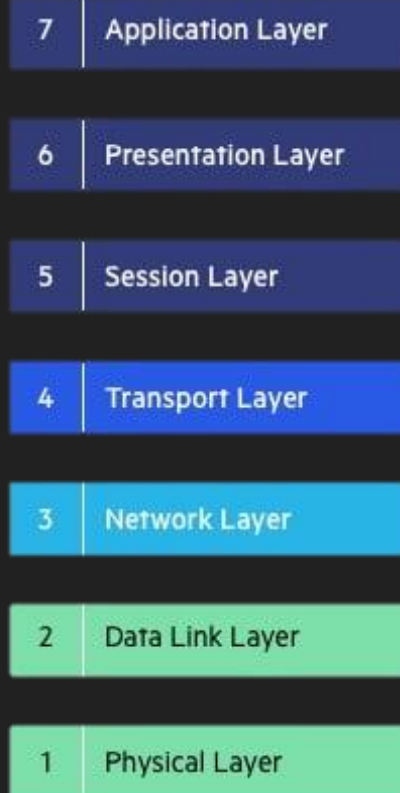
Bandwidth

Network  
length

Limited  
Payload

Nodes

# OSI Layers



Lower  
layers

Higher  
layers

# Target group and market share

- Automotive Industry
- Agriculture Equipment
- More...
  
- Can Open: 2%
- Device Net: 3%

