

**CAN**

**CAN**open®

**DeviceNet**  
ODVA

**CAN**

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# Overview



SERIAL BUS



ASYNCHRONOUS



DIFFERENTIAL  
SIGNALLING

**+Noise**

3.75V

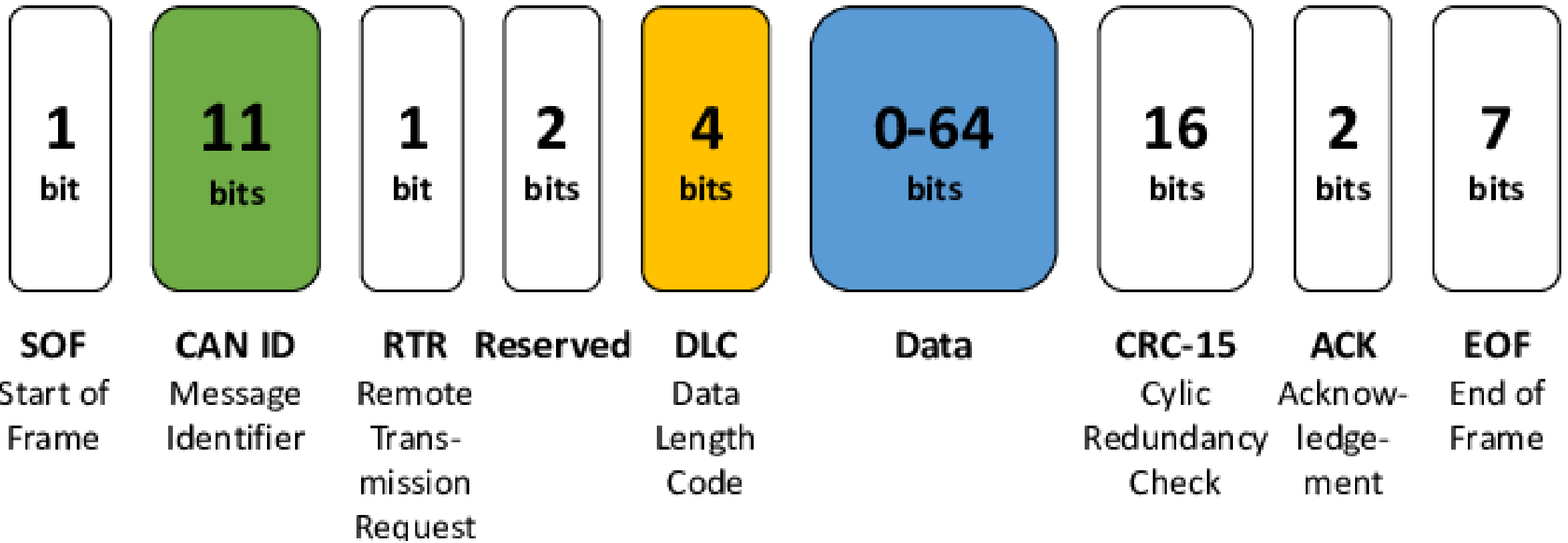
**CANH**

2.5V

**CANL**

1.25V





**Data Link Layer**

# DeviceNet / CANOpen



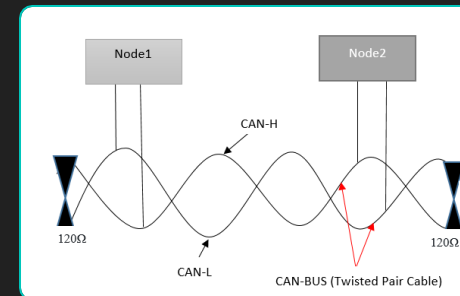
DeviceNET – Industrial



CANOpen – Device  
profiles

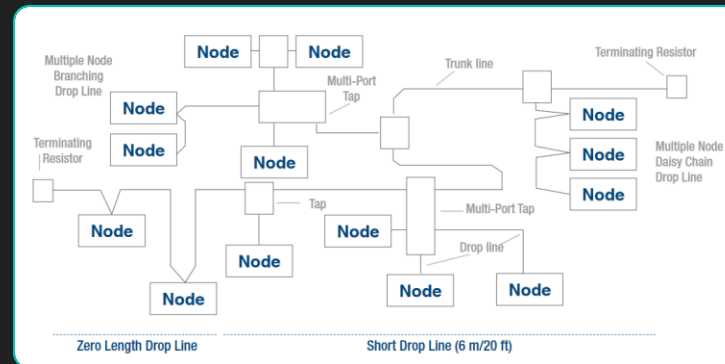
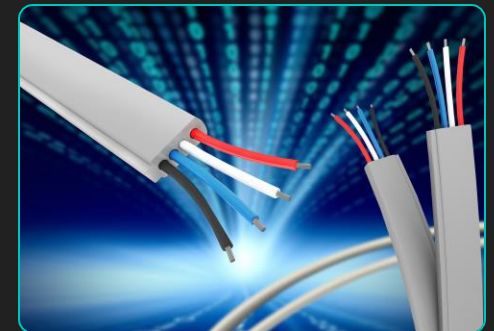
# Wiring Can Bus / Can Open

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

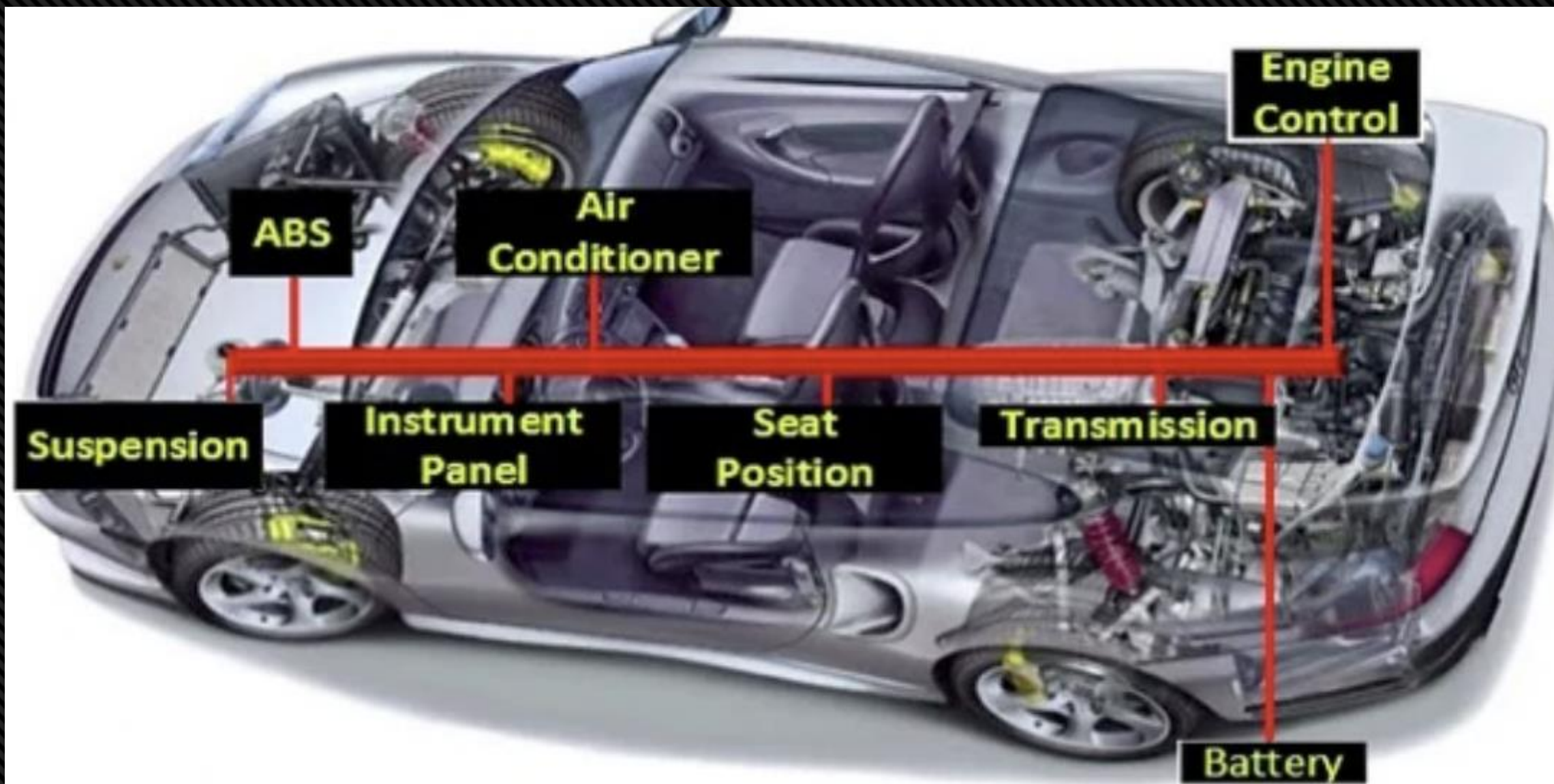


# Wiring DeviceNet

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









# 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
<u>Source</u>			

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

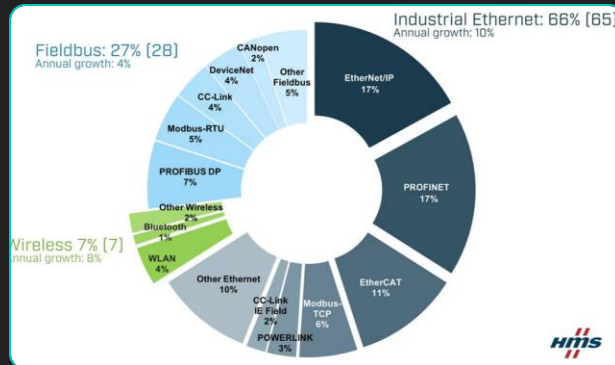
# OSI Layers



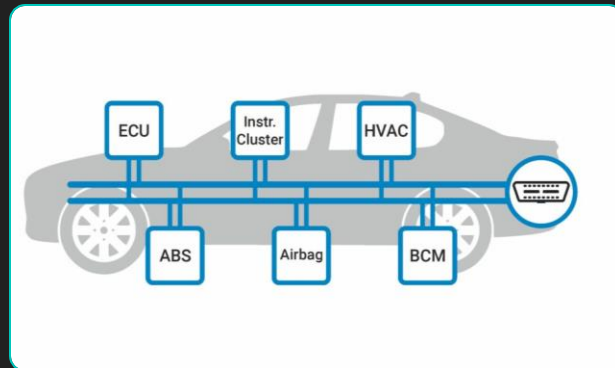
Lower  
layers

Higher  
layers

# Target group and market share



- Automotive Industry
- Agriculture Equipment
- More...



- Can Open: 2%
- Device Net: 3%

# Kilder

- [https://www.odva.org/wp-content/uploads/2021/05/PUB00026R5\\_Tech-Series-DeviceNet.pdf](https://www.odva.org/wp-content/uploads/2021/05/PUB00026R5_Tech-Series-DeviceNet.pdf)
- <https://www.hms-networks.com/news-and-insights/news-from-hms/2023/05/05/industrial-network-market-shares-2023>
- [https://en.wikipedia.org/wiki/CAN\\_bus](https://en.wikipedia.org/wiki/CAN_bus)
- <https://www.can-cia.org/canopen/>
- <https://www.can-cia.org/can-knowledge/>
- <https://en.wikipedia.org/wiki/CANopen>
- <https://en.wikipedia.org/wiki/DeviceNet>