

P R O F I

ProfiNet

Laga av Emil, Herman, Martin og Silje

N E T

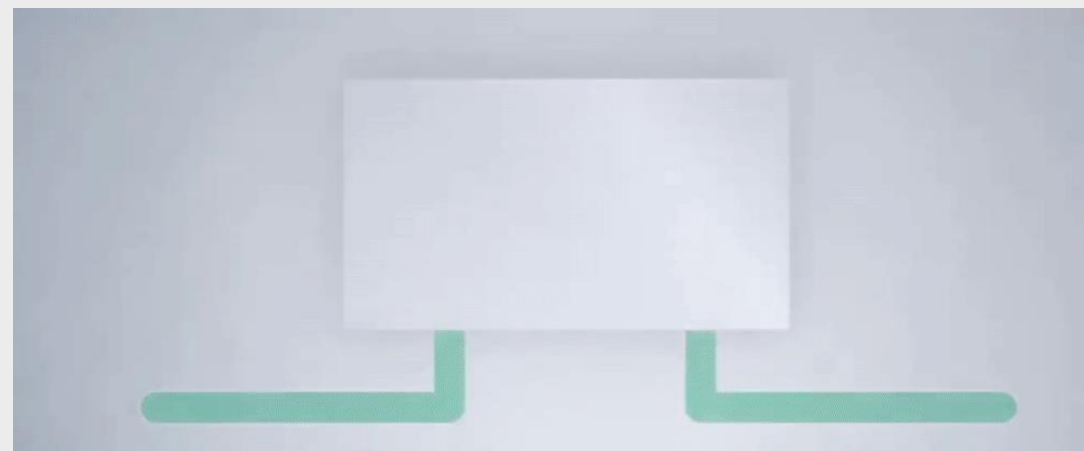
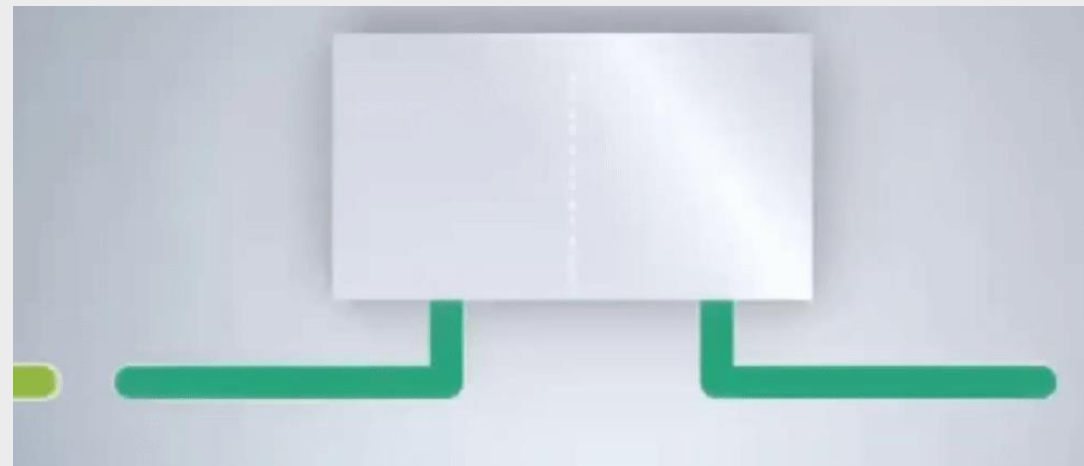
Målgruppe

- Process Field Network
 - Industriell Ethernet-kommunikasjonsstandard
 - Fagfolk og organisasjoner
-
- Ingeniører og teknikere
 - Produksjons- og prosessindustrier
 - Systemintegratorer
 - Utstørsprodusenter
 - Vedlikeholds- og støttepersonell
 - Utdanningsinstitusjoner

Hastighet

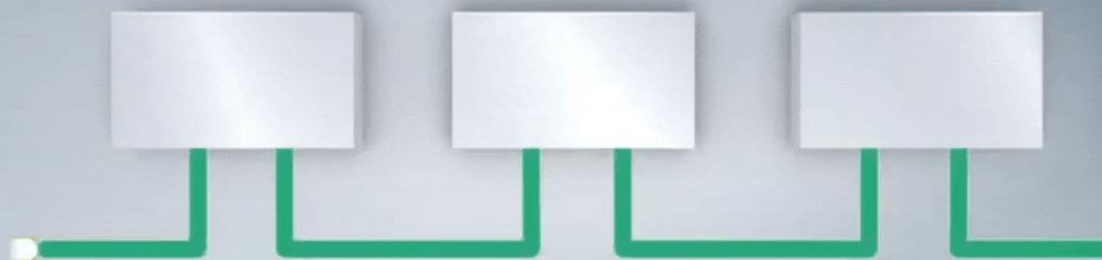
- Rask Videresending
- Dynamisk Rammepakking
- Fragmentering

Hastighet – Rask Videreledning



Hastighet – Dynamisk Rammepakking

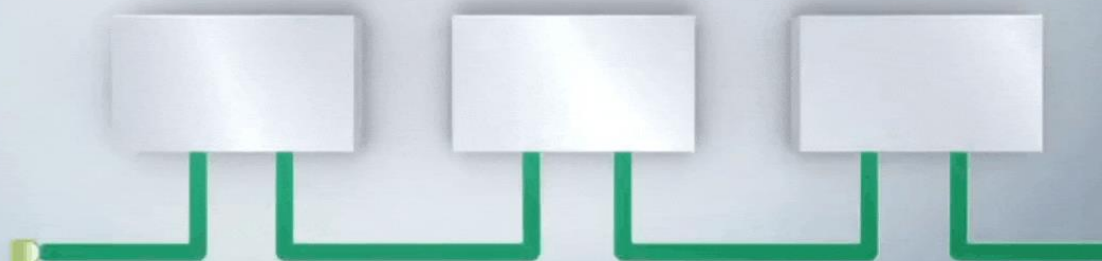
Up to now



Summation frame
method

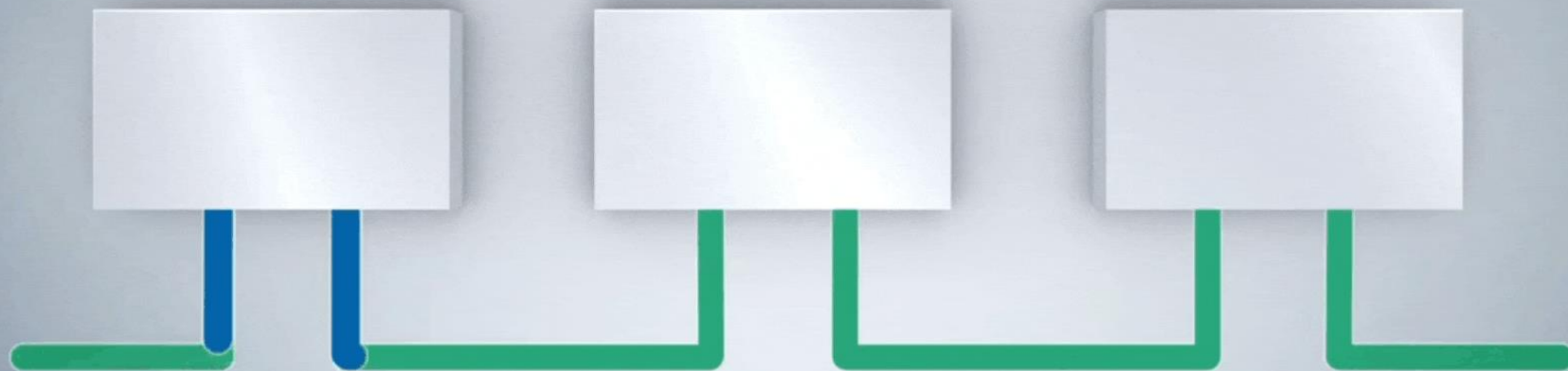


Dynamic Frame
Packing (DFP)



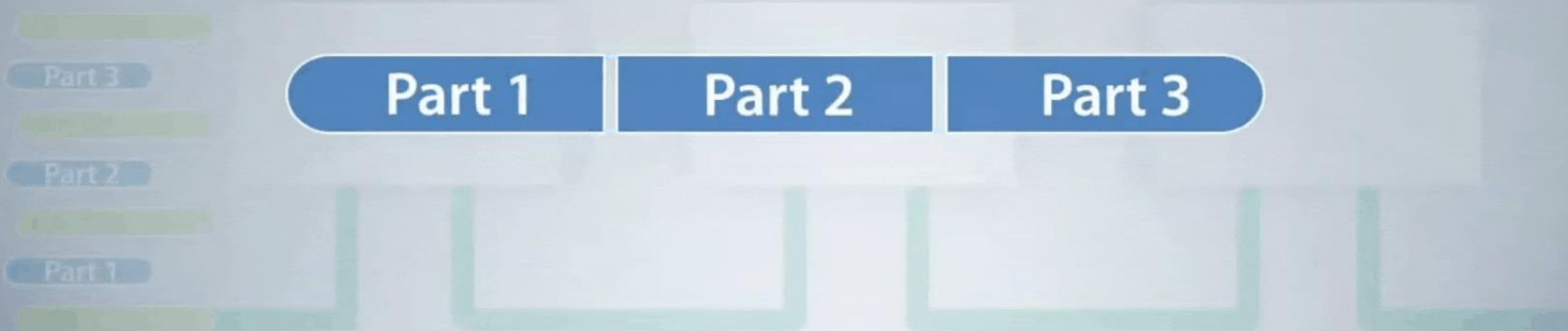
Hastighet – Fragmentering standard ethernet frame med TCP/IP data

Up to now



Hastighet – Fragmentering fragmentering med TCP/IP data

Fragmentation



Hastighet – Fragmentering Sammenligning

Up to now

Max. TCP/IP telegram



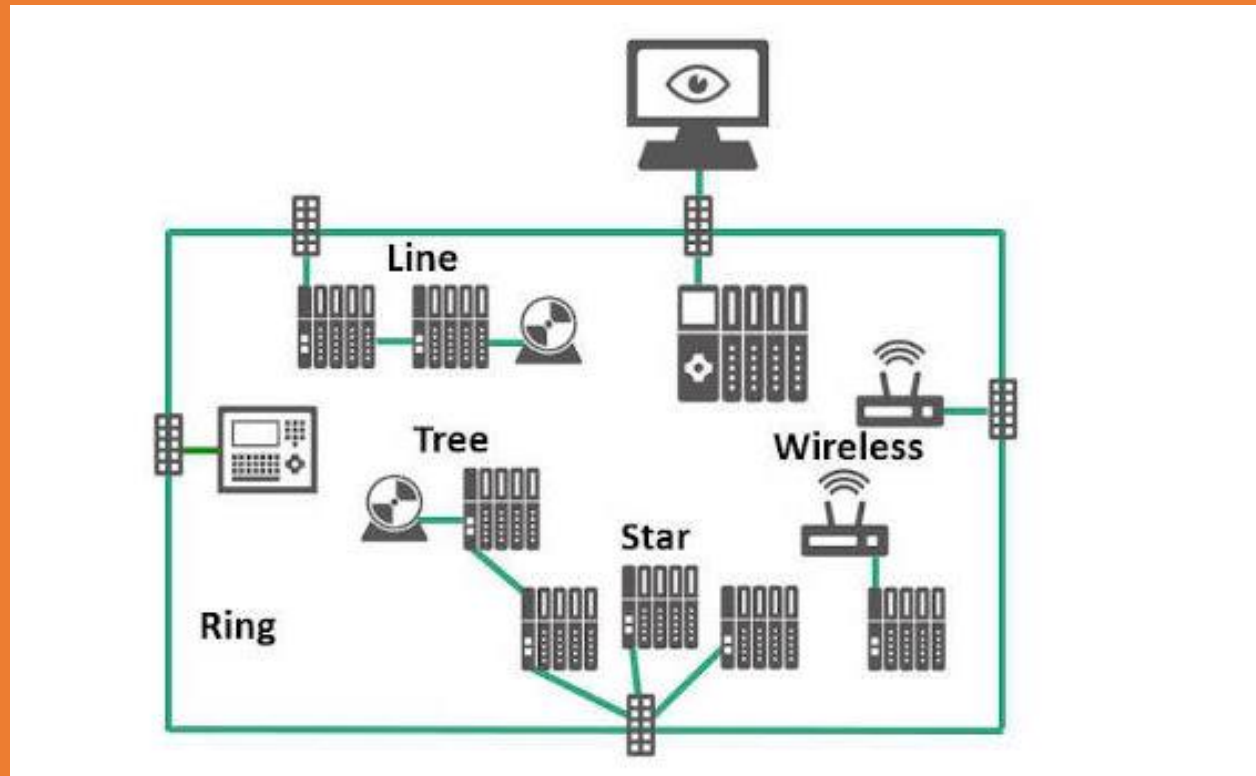
Fragmentation

Part 2

Part 3



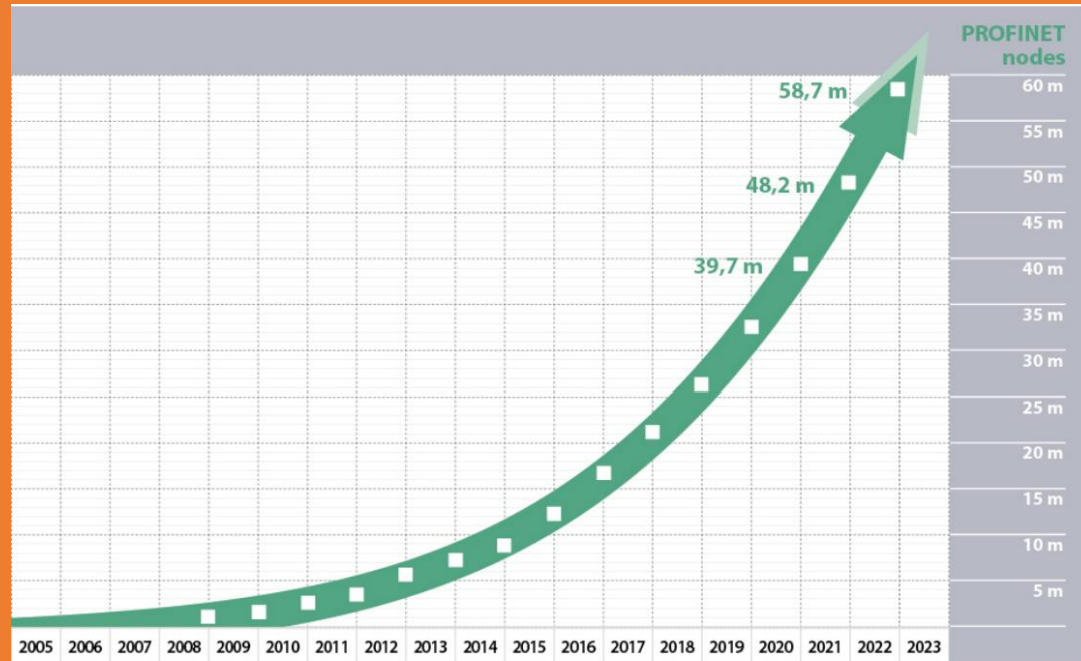
Medium



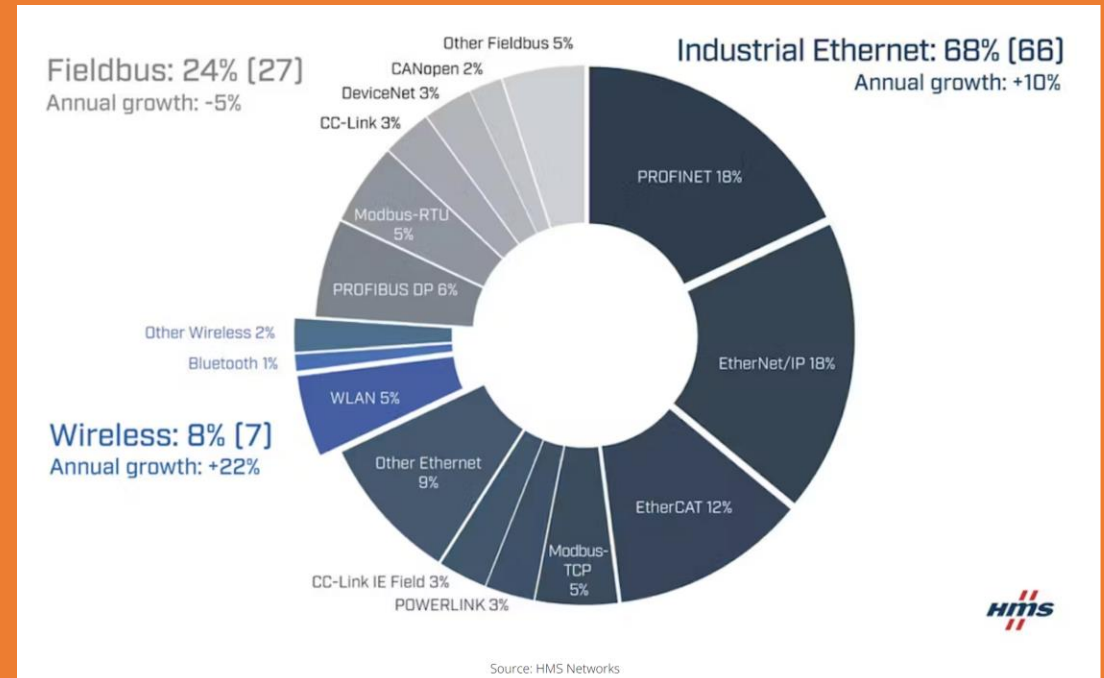
- Topologier
 - Linje
 - Ring
 - Stjerne/tre
- Ethernet (elektrisk)
- Fiber (optisk)
- Trådløst (radiobølger)
- Kombinasjon

Markedsandel / popularitet

- Markedsandel på ca. 18% i 2023.
- 2022 ble 10,5 millioner enheter installert.
- Økning på 23,5% fra 2021.
- 58,7 millioner installerte enheter totalt.

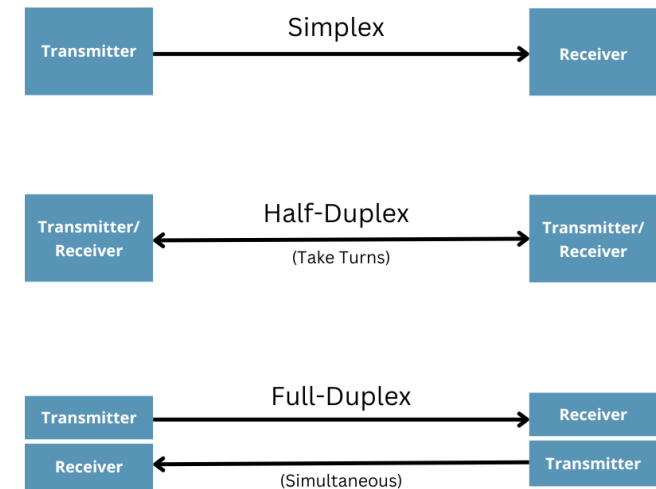


The annual node count yielded a record number for PROFINET. In 2022, 10.5 million new devices were put on the market.



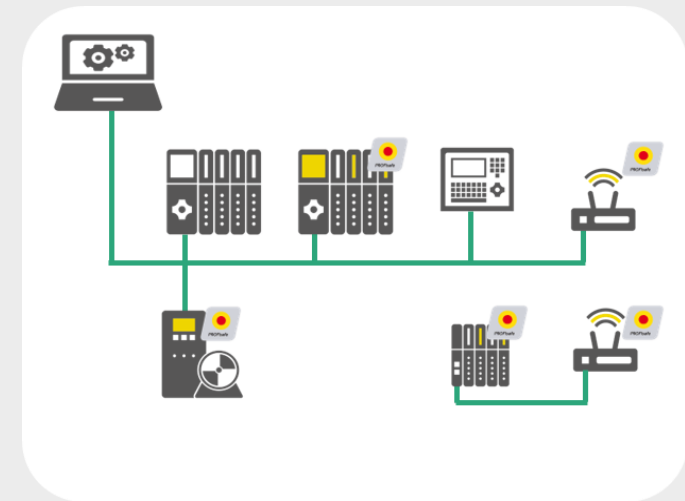
Virkemåte

- Standard TCP/IP
- UDP/IP
- ProfiNet RT – Real Time
- ProfiNet IRT – Isochronous Real Time
- 100Mbit/s - 1Gbit/s, Full-duplex



Begrensinger

- Standard Ethernet 100m (Copper kabel)
- Optisk fiber kabel
- Nettverk topologi
- 128 I/O devices
- ProfiSafe



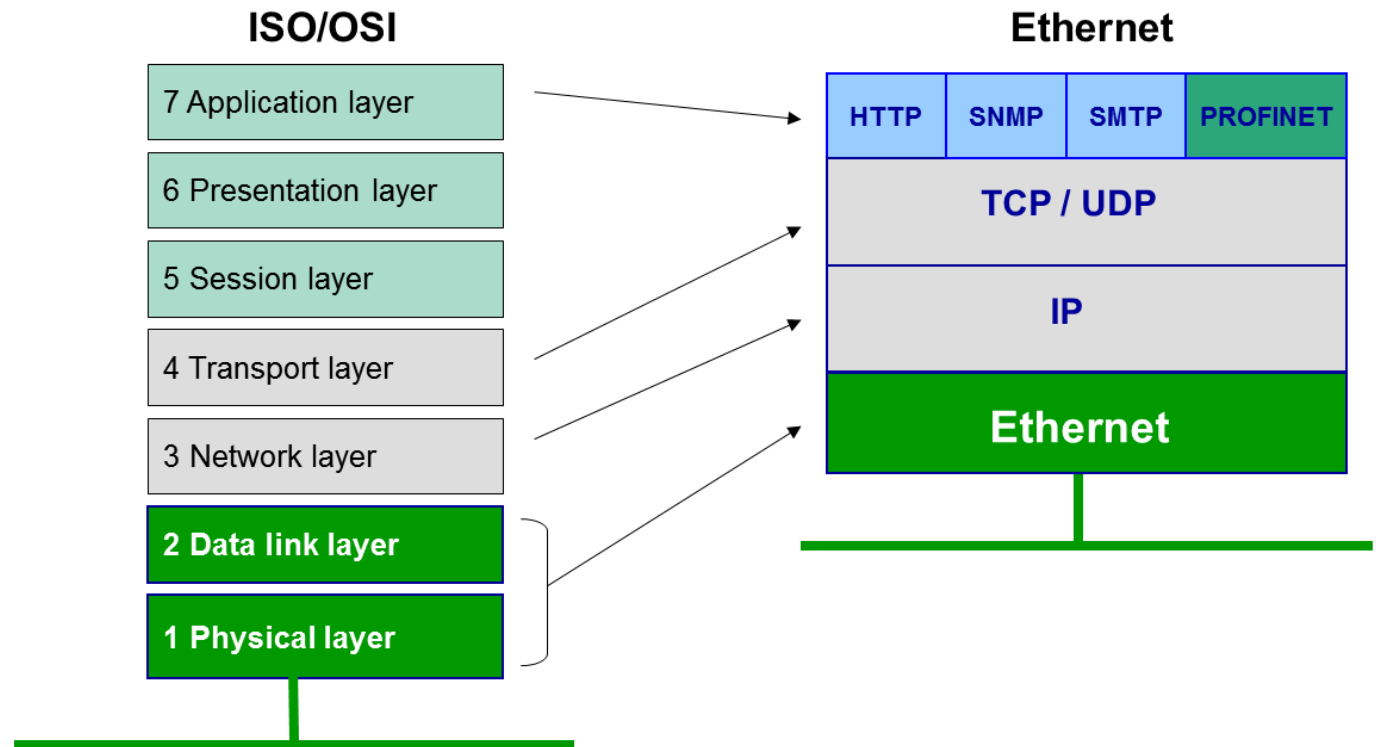


Viktige forskjeller ifrå andre feltbusser

- Overføringsmedium og –hastighet
- Anvendelsesområde
- Protokoll og datastruktur
- Realtidsegenskaper
- Integrering og interoperabilitet

OSI- Modellen

- Fysiske laget (Lag 1)
- Dataforbindelseslaget (Lag 2)
- Nettverkslaget (Lag 3)
- Transportlaget (Lag 4)
- Applikasjonslagene (Lag 5-7)



Kjelder

[1] "ProfiBus" <https://www.profibus.com/technology/profinet> (Hentet fra 9.okt – 23.okt, 2023)

[2] "ProfiNet"

<https://us.profinet.com/wp-content/uploads/2020/10/How-PROFINET-Works-Complete.pdf>

(Hentet 19.okt)

<https://www.profibus.com/newsroom/press-news/record-profinet-and-io-link-numbers> (Hentet 20. Okt, 2023)

<https://us.profinet.com/picking-a-network-topology/> (Hentet 20. Okt, 2023)

<https://www.automationworld.com/communication/article/33009016/industrial-ethernet-growth-continues-as-fieldbus-declines> (Hentet 20. Okt, 2023)

<https://us.profinet.com/profinet-media-redundancy/> (Hentet 20. Okt, 2023)