

What is Single Pair Ethernet 10BASE-T1L?

The transmission of Ethernet and power via only one copper wire pair.

Slim as conventional Bus infrastructure, but significantly more powerful in data rate and simultaneous power transmission.

01

Power & Data
Over One Cable



02

Bandwidth 10 Mbps



03

Single Twisted
Pair

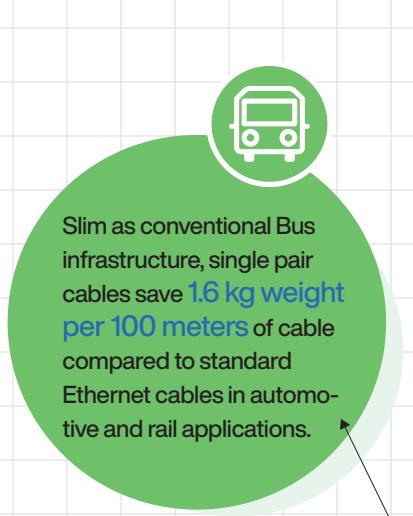


04

Long Reach



What are the benefits of Single Pair Ethernet?



Every small sensor becomes a smart participant in the **Industrial Internet of Things** with a common language from the entire field to the cloud.



Thinner and more flexible, cables also offer significantly higher numbers of possible work cycles in robotic applications. With a longer service life this results in considerable cost savings.



With **TSN**, (Time Sensitive Network) sensors become real-time capable and can be used for safety-relevant cabling.



Cabling becomes simpler and can be installed much faster and in some cases existing fieldbus cabling can be reused.



How does Single Pair Ethernet compare?

Comparison of Existing Communications Standards with 10BASE-T1L

Protocol	Packet Formats	Cable Length	Bit Rate	Power Supply via Data Cable	Connector	Intrinsic Safe Use Case
PROFIBUS PA	UART/PROFIBUS	1200 m	3125 kbps, bus, half duplex	No	M12, Terminal Screw	Yes
Modbus RTU and other RS-485 protocols	UART/Modbus	1200 m (up to approximately 185 kbps, at 375 kb 300 m, at 500 kb, 200m)	Typically 19.2 kbps, bus, half duplex	No	DB9, M12	N/A
I/O Link	I/O Link	20 m	Max 230.4 kbps, half duplex	No	M12	No
4 mA to 20 mA	Analog Interface	> 10 km	- / -	Yes, 36 mW	Screw	Yes
HART	Digitally modulated over 4 mA to 20 mA	> 1500 m	1200 bps, bus, half duplex	Yes, 36 mW	Screw	Yes
10BASE-T1L	Ethernet IEEE 802.3	1000 m (2.4 V) with up to 10 joints (terminal boxes)	10 Mbit, full duplex	Yes, up to 60 W In Ex Zone 0 up to 500 mW	Terminal screw or IDC connector, optional single pair Ethernet connector	Yes
CAN/DeviceNet	DeviceNet Standard/Extended CAN	> 200 m (10 V) Max 1km with 50kbits/s	CAN 2.0 - 1Mbps* CAN FD - 15 Mbps* * 40m cable length	Limited, Engineered	9-pin D-Sub	Now