

Digitalisation processes for Industry 4.0 and IIoT

Questions and answers



Question 1

Can conventional ethernet cable be used with conventional sockets for SPE?

Answer 1

Since the frequencies for SPE are much higher than for other communication technologies, it will be very difficult to reuse the existing infrastructure. This may work for lowspeed applications. However, each channel must be measured and tested individually after installation. There is no guarantee for this.

Question 2

These are great standards and technology. Will create costs savings on cabling for sure. What about costs of production of the sockets and plugs - will they be close to RJ45 costs?

Answer 2

The goal is of course to offer a low cost infrastructure solution comparable to RJ45. Currently, the technology is still very new and the volumes are not there, so that the prices are currently still very high. It is important to keep an eye on the overall system with its advantages and not to focus the costs only on connectors and cables. The costs for cables can probably be reduced by 30-40% in the future.

Question 3

What is difference in price compared SPE and RJ45

Answer 3

See answer 2

Question 4

Will SPE replace standard Ethernet based on RJ45 or M12?

Answer 4

There will certainly be areas where SPE will replace and supersede standard Ethernet. The overall goal, however, is to extend the existing Ethernet structures and to bring Ethernet to the field levels where it is mostly not used today.

Question 5

Will the lengths for the transmission standards still be extended or unified? Now these still vary depending on the standard.

Answer 5

Yes there is an ongoing project at IEEE to extend the SPE standards. The first step is the 100BASE-T1, 100 Mbit/s up to 15 m in focus. This is to be extended to more than 100 m. Further standards are to follow in order to further expand the application range of SPE.

Question 6

Can other protocols such as PROFINET be transferred via SPE?

Answer 6

SPE is a new physical layer that enables data transmission over two wires. Here almost all protocols can be transmitted via SPE.