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SPE Industrial Partner Network continues to drive development of the IEC 63171-7 standard for hybrid interfaces

Powerful IIoT devices can only work with the right infrastructure. The IEC 63171-7 standard specifies hybrid M12 interfaces with SPE and power contacts for high-power applications. Open standard increases investment certainty in the SPE market.

Rahden, 26th August 2021 --- Through active committee work, the SPE Industrial Partner Network is driving the development of IEC 63171-7 for hybrid SPE + power interfaces in M12 format forward. The development of the standard and of the associated hybrid interfaces in M12 is the logical and natural progression of the hybrid SPE + power interface in M8 format, as already specified in IEC 63171-6. While it leads the development of the technology and the standard, IEC 63171-7 was nevertheless deliberately created as a new, independent standard in order to give all SPE users the confidence to invest in it.

Through active committee work, the members of the SPE Industrial Partner Network are driving forward the development of hybrid M12 SPE + power connectors and the associated new standard IEC 63171-7. It is the logical and natural progression of the M8 hybrid connectors for SPE and power contacts, as already defined in IEC 63171-6. The M12 interface is one of the most common sizes at the field level of automation. To establish SPE as the new physical layer for the IIoT at the field level, the right infrastructure is needed.

As well as higher data rates, the SPE infrastructure should also ensure greater ranges and increased power supply to devices. To guarantee this even in the case of high-power applications, it is necessary to seek alternatives to Power over Data Line (PoDL) via data contacts, which are limited to 50W at the device and a pure point-to-point star topology. If higher power is required or if more variable network structures are to be realised as a line or tree, hybrid cabling is needed, with separate wire pairs for SPE and power supply. To fulfil these requirements, IEC 63171-6 defines

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suitable PoDL and hybrid M8 interfaces with one SPE contact pair and two additional power contacts for 60V DC / 8A.

Building on this solution, the hybrid concept was further developed, adding more contacts, and integrated into the M12 size. At the suggestion of TE Connectivity, a SPE Industrial Partner Network founding member, the M12 hybrid interfaces are being standardised under IEC 63171-7. Following consultations with the members of the SPE Industrial Partner Network and with customers, up to five power contacts plus the SPE contact pair are integrated into the proven M12 format. Different versions from 60V DC / 50V AC to 630V AC 3-phase can be realised with fool-proof coding. This makes these new M12 hybrid interfaces suitable for a wide range of applications such as DC servodrives, small three-phase drives and many more. The hybrid system combines the advantages of a direct supply of data and power with the lower cost and compactness of cabling using only one cable and one interface at the device. In this context, M12 interfaces offer excellent EMC properties through having separate data and power contacts.

Together with IEC 63171-6, as the new standard for hybrid M12 SPE + power solutions IEC 63171-7 gives companies the confidence to invest in the successful establishment of Single Pair Ethernet at the field level.

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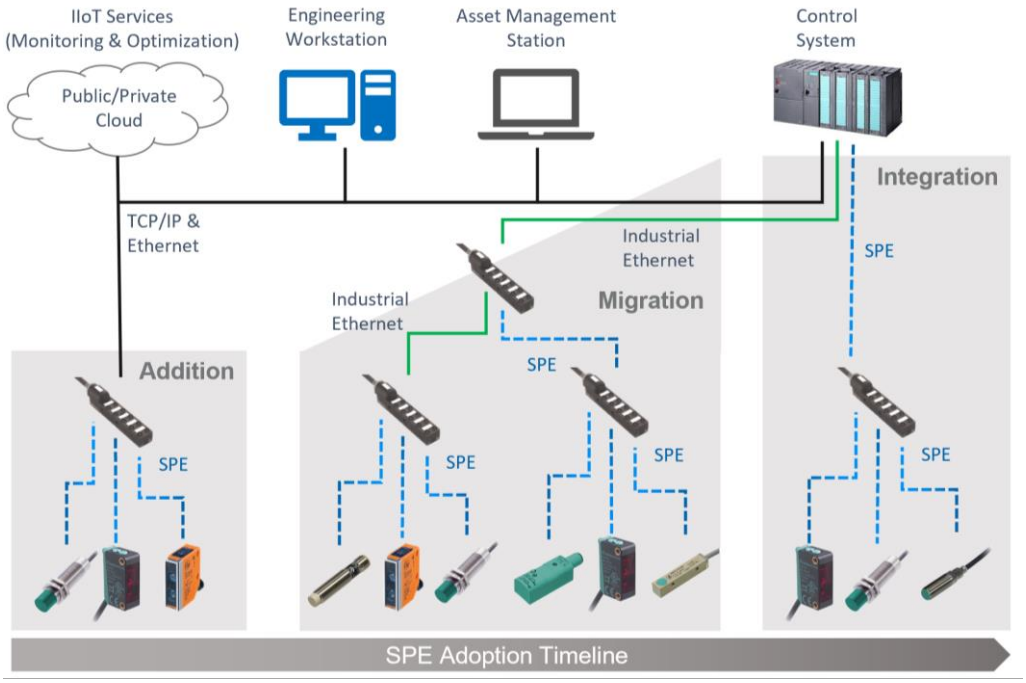

Figure 1: Migration scenario for implementation of SPE in industrial automation

Source: TE Connectivity

Figure 2: M8 hybrid interface with SPE and power contacts for up to 60V DC / 8A

Source: HARTING

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Via the partner network:

The SPE Industrial Partner Network is based in Rahden in Westphalia and is an equal alliance of companies that promote Single Pair Ethernet technology as the basis for rapid and successful growth of IIoT. The aim of the association is to establish SPE on the market as a new Ethernet technology in the sense of a comprehensive ecosystem with all necessary components.

We also see ourselves as a partner of the Industrial Ethernet user groups and would like to support them in the adaptation of this new "physical layer" for PROFINET, EtherNet/IP, CC-LinkIE, for example.

The bundling of competences of the individual companies should give users an investment security to invest in this technology. Other interested companies are welcome to become new members. Shaping the future together - talk to us!

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