

Support of 10BASE-T1L with TERA® SPE Cabling

Siemon's Single-Pair Ethernet Solution is More than the Sum of Its Parts

Operational Technology (OT) is commonly used for monitoring and controlling simple, low-speed devices used in manufacturing, industrial and utility applications. Typical OT examples would be building control systems, such as those communicating with meters, sensors, actuators and remote controllers, as well as automated industrial systems, such as devices and machinery that support manufacturing. 10BASE-T1L single-pair Ethernet (SPE) is a convergence application that is ideally suited for enabling communication and interoperability between these low-speed devices and systems. It supports building control, industrial and other network connections up to 10 Mb/s with non-proprietary cabling, while also providing a common networking platform for Internet of Things (IoT) and Industrial IOT (IIoT) in the enterprise space.

Siemon's TERA SPE solution features TERA cables and components and offers many advantages compared to traditional OT communication methods - including reduced cost, operation over distances up to 400 m (1,300 ft), and delivery of dc power using IEEE 802.3 power over data lines (PoDL) with all components rated for current capacity up to 2 amps. This future-proof solution features individually shielded pairs for deployment in enterprise MICE 1 environments. It offers the benefits of superior noise immunity, virtually zero emissions and sufficient transmission headroom to support evolving standards-based SPE applications and equipment. The high performance of Siemon's TERA SPE system provides guaranteed support of 10BASE-T1L applications with reach up to 400 m without the need for field testing.

TERA SPE cabling leverages the versatile cable-sharing abilities of TERA components to simplify cable management, reduce costs, and more efficiently utilize pathways. Note that, while network port converters will likely be required to integrate 10BASE-T1L with traditional IP networks, Siemon's standards-based 4-pair TERA outlet easily facilitates plug-and-play connections to both 10BASE-T1L and 10/100/1000BASE-T Ethernet equipment using 4-pair, 2-pair and 1-pair TERA plugs and 4-pair field terminated category 6A Z-PLUG™.

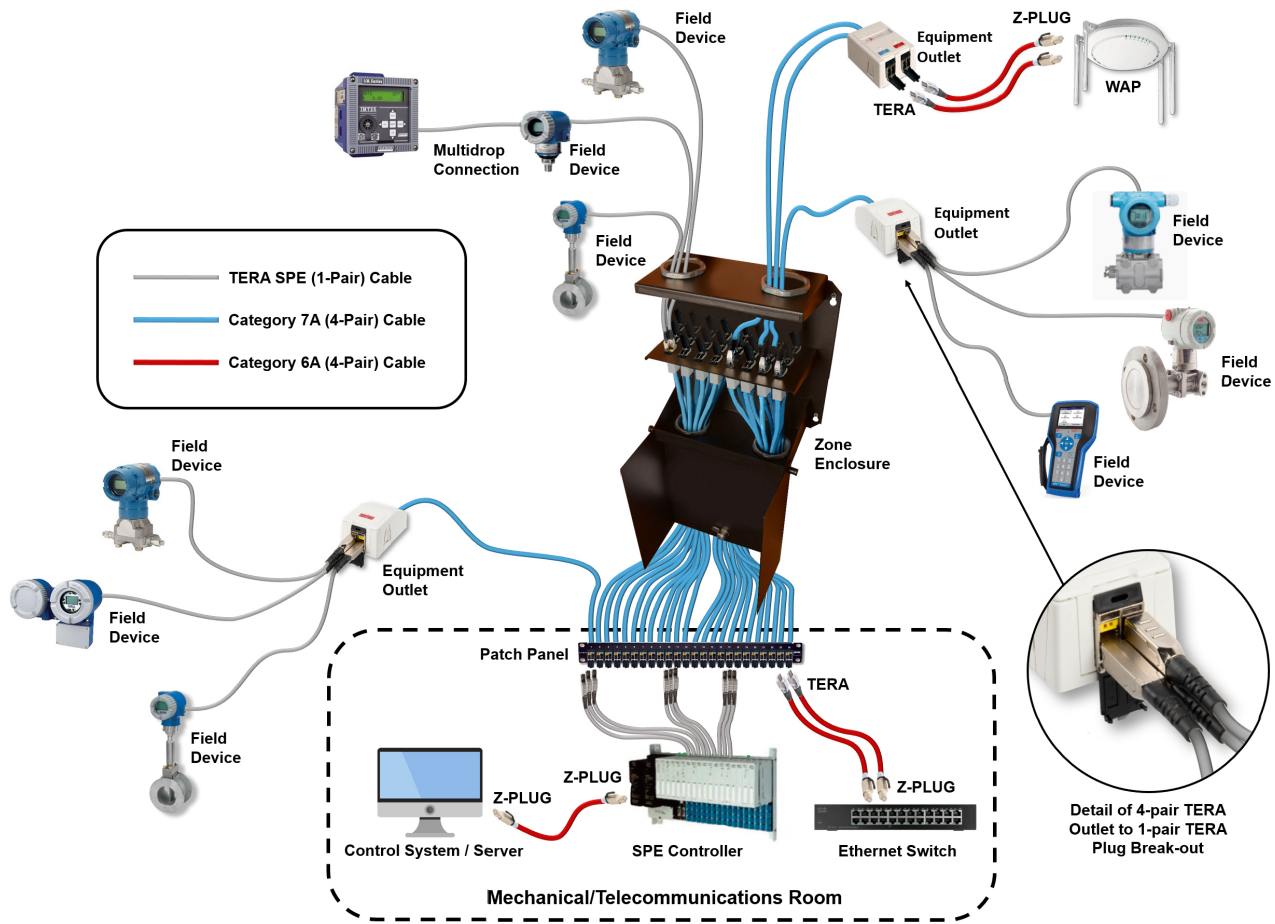
Siemon's fully-shielded S/FTP and F/FTP cables perfectly complement the performance of the TERA outlet. These cables are designed with individual foils around each pair coupled with a high screen coverage outer braid or foil that provides exceptional crosstalk performance and immunity from outside interference. These cables have been qualified for operation in high temperature environments up to 75°C (167°F).

Since 10BASE-T1L equipment and devices do not have a broad presence in the market yet, Siemon's TERA SPE cabling solution is designed to be compatible with 1-pair screw terminal and 1-pair pluggable interface connections. Siemon applications support specialists will work with end-users to identify field terminated solutions using 1-pair TERA cords to connect to SPE equipment interfaces at both ends of the channel.

Summary features of the Siemon TERA SPE solution:

- A full end-to-end channel solution providing guaranteed support of the 10BASE-T1L application without the need for field testing
- Flexible zone-based channel topologies supporting dedicated 10BASE-T1L device connections up to 400 m (1,300 ft)
- The TERA interface supports both SPE and 4-pair Ethernet
- This solution also supports modular 2-pair field-terminated connections for legacy building control and industrial bus applications

Example TERA SPE and 4-pair cabling deployment configurations:



Example Siemon TERA SPE Solution Components¹

Part Number	Description
T7F-01-1	TERA 4-pair outlet
T7P4-B01-1	TERA 4-pair plug
TM-PNLZ(A)-24-(01)	24-port TERA-MAX patch panel
T1SU1-(XX)M-B(XX)L ^{2,3}	1-pair TERA patch cord, CM/LSOH 26 AWG stranded S/FTP cable
9T7L4-E10 ⁴	4-pair category 7A LSOH 23 AWG solid S/FTP cable
ZU-MX-24P	24-port zone enclosure
MX-SMZ1-(XX)	Single-port surface mount box
ZP1-6AS-01S ⁵	Z-PLUG category 6A field-terminated plug

¹ This example component list is for an LSOH SPE cabling system. Contact Siemon for availability of systems with other flammability ratings.

² Two 1-pair TERA interconnect cords may be constructed by cutting a 1-pair TERA patch cord to length.

³ Multidrop interconnects with screw terminals may be constructed using 1-pair shielded cable.

⁴ Other fully-shielded cable options available.

⁵ The Z-PLUG supports custom-length cords terminated in the field. Alternately, a category 6A patch cord may be used.

Because we continuously improve our products, Siemon reserves the right to change specifications and availability without prior notice.

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