"SPE Testing Made Easy"

Cable Qualifier

Solution for Testing Ethernet-APL & 10Base-T1L Cables

Ideal for Field Testing Easy to Use Portable Low Cost

The verification of cables installed in manufacturing and industrial SPE networks is critical as the environment may subject them to a variety of conditions such as electromagnetic interference (EMI) from surrounding equipment, vibrations, moisture, temperature changes and more. The primary cable faults in SPE and Ethernet-APL applications are open and short circuit conditions, insertion loss that is too high, or DC Loop Resistance levels that are unacceptable for performance. These may result in data packet loss which can cause a machine to shut down or a critical device to fail. The ability to assess cable reliability during installation or to identify and troubleshoot issues quickly and easily when they occur is essential to peak operation. A portable cable tester is the ideal solution.

Existing cable testers on the market are expensive and very complex to use. Telebyte's Cable Qualifier can be used by cable installers with minimal training. It offers a portable and affordable method for testing the performance and reliability of 10BASE-T1L and Ethernet-APL cables in the SPE network. This easy-to-use system allows the user to test per the IEEE's 802.3-2022 10BASE-T1L and Ethernet-APL standards that define the cable limits for data and power over data lines. The Cable Qualifier App provides straightforward selection of the Standard, Data Only, or Power Class as well as simple Pass/Fail indicators. The Cable Qualifier App is available for Android, IOS and Windows.

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Features Include

Operating Modes & Indicators:

- Simple and Advanced modes Tri-color Pass/Fail indicators (Green/Orange/Red)
- Easy to operate
- Low cost SPE testing

Cable Qualification:

- Ethernet-APL Power Classes: Spur A/B/C, Trunk 3 & 4
- PoDL Type E Power Classes 10–15
- Cable NVP Calibration
- Tone generator and detector

Wireless & Power:

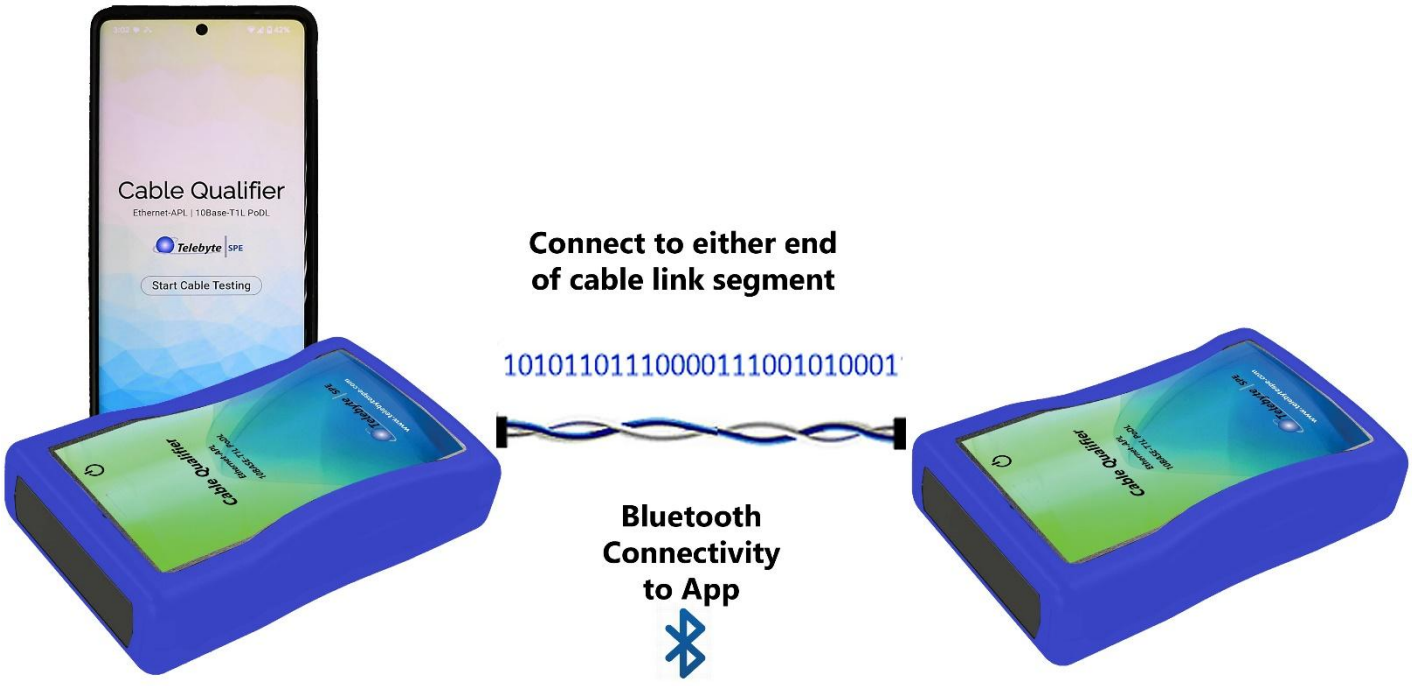
- Bluetooth 5.4 Low Energy
- Battery operated
- Firmware is upgradable via USB
- Battery health monitoring

Software & Mechanical:

- Controlled via Cable Qualifier App (Android/iOS/Windows)
- Download/Share PDF reports
- Language support: English & Chinese
- Removable silicone rubber boot for protection

Test Capabilities Include

Signal to Noise Ratio (SNR)	Ping Packet Loss
DC Loop Resistance Measurement	Shield Continuity Verification
Cable Fault Detection	Cable Length Detection



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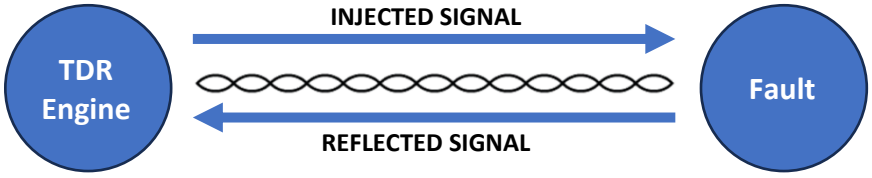
Cable Fault Detection Using Time Domain Reflectometry (TDR)

The Cable Qualifier implements TDR to identify open and short conditions in the cable, assess the distance from the PHY to the cable fault, and estimate the cable length. The built-in TDR fault detector has a time resolution of 8.3 ns, which translates to a length resolution of less than 1m and a detection range of over 1600m, with an accuracy of 2%.



Specifications

Connectors	• 3-position terminal block, 5.08mm ○ Pluggable mating connector, 12AWG to 30AWG • Micro-USB B for firmware updates Custom cable adapters available upon request
Control	Power on/off push-button switch
Indicators	Blue LED to identify Controller, Orange LED to identify Remote unit Blinking to indicate connection between Controller and Remote unit
Power	Two AA batteries
Connectivity	Bluetooth 5.4 Low Energy
Dimensions	4.63 in x 2.84 in x 1.00 in (118 mm x 72 mm x 25 mm)
DC Loop Resistance	0.2 Ω ± 0.5%
Cable Fault Detection	Time resolution: 8.3 ns Detects opens & shorts < 1 m Detection range: up to 1600 m Accuracy: ±2%
Cable Length Detection	Supports cable lengths greater than 20 m

Ordering Options

Model	Description
CQT1L10	Cable Qualifier Handheld Tester and Cable Qualifier App (Android, IOS and Windows) Note: Two CQT1L10 units are required to test cables, one on each end of the cable