Advanced Cable Tester

Key Features

Test Cables
- E-Marker
- Continuity
- Signal Integrity
- IR Drop
- Active/Passive
- Up to 12 Gbps
- Available adapters for USB Standard-A, Micro-B, and Lightning
- Continuous test mode (burn-in)
- Real-time results
- Results displayed on LEDs for headless operation
- Detailed logs, measurements, and eye diagrams available via web interface
- Ideal for laboratory and light manufacturing applications

Test Coverage
- Comprehensive cable IR drop
- DC resistance of each individual power pin
- Optional software upgrade to test signal integrity and provide eye diagrams for D+/D− (480 Mbps), all four SuperSpeed pairs (5 Gbps, 10 Gbps)
- For EMCAs, E-Marker operation and correctness is compared to measured cable characteristics

Built on Promira® Serial Platform
- Easy software updates
- Ethernet/USB connectivity
- Remotely accessible

Advanced Cable Tester API
- Control test parameters
- Retrieve detailed test reports, logs, and statistics
- Upgrade for programming of E-Markers (future release)

Quality
- REACH, RoHS, China RoHS
- Manufacturing: ISO 9001, ISO 13485, AS9100C
- One-year warranty

The USB Type-C cable is the most technically advanced cable available. High voltage and current, coupled with 10 Gbps data rates and numerous wires drive ubiquity and, with it, complexity. High speed USB data, the ability to quickly charge mobile devices, HD video, and reduced number/size of ports on consumer products—the USB Type-C cable is changing the face of electronics.

Test and validation of cables has always been essential, but with the added risk of fire increasing liability, testing is more critical than ever. Traditional cable test approaches fall into two main categories: (1) high-end: using expensive scopes, custom fixtures, and highly sensitive electronic analyzers which cost hundreds of thousands of dollars–this works well for design validation, but is never suitable for casual/ongoing use; (2) extremely basic: testing of simple continuity or no real testing at all (plug it in to see if it works) with statistical analysis–missing failures and not identifying underperforming cables.

The Total Phase Advanced Cable Tester Applications provide capabilities never seen before: high-fidelity data throughput measurement, thorough continuity testing, IR drop for safe operation/reliability, and E-Marker verification. Rapid spot-checking of cables, easy-to-understand reports, and 100% test coverage are available to casual, laboratory, and production environments at a fraction of the price, setup time, and labor versus any alternate solutions.

Development & Laboratory

Every individual pin independently profiled for ultra high-fidelity test results. USB, DisplayPort, HDMI.
- **Design**: Verify E-Marker programming, cable wire routing, and power capability
- **Safety**: Measure DC resistance of each power pin & wire; calculate maximum safe current capability
- **Stress Testing**: Measure performance impact of applied mechanical stress
- **Thermal Testing**: Profile changes in cable performance across a range of temperature conditions
- **Burn-in**: Validate cable performance for long-term use to drive field product reliability

Manufacturing

- **Incoming QC**: Electronically test connector & PCB before assembly
- **100% Test Coverage**: E-Marker, power, continuity, signal integrity
- **Minimal labor**: Real-time tests yield complete results in seconds
- **Automation**: API available for integration of results into your SPC, as-built database, etc.
- **Headless**: Can run without attached PC for more flexibility
- **Final QA**: Ensure every cable meets all safety and performance parameters before fulfillment

High-volume large-scale manufacturing solution available.

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Applications

Power Rail Testing

Maximum current of 5 amps is split among four VBUS & four GND pins. If one pin is not correctly soldered, this can be dangerous. The DC resistance (DCR) of each pin is individually tested, the overall IR drop measured and anomalous pin values highlighted for safety and end product reliability.

Signal Integrity (SI) Testing

Type-C cables can carry a variety of signals, such as USB, Display-Port, HDMI, or alternate modes. The optional Level 2 application tests signal integrity, measuring SI for all high-speed differential pairs at 5 Gbps and 10 Gbps; the D+/D− pair at 480 Mbps, ensuring high performance.

Continuity

With a reversible connector, 24 pins, and at least 15 wires, Type-C cables pose a challenge for continuity testing. Thorough continuity checking verifies the correct wiring of each signal and tests for shorts for complete quality assurance.

E-Marker for EMCA

An EMCA includes an active E-Marker chip in one or both plugs, indicating cable characteristics, potentially controlling cable function. When present, each E-Marker is verified to be functional and accurately programmed, confirming safety and correct performance.

Specifications

Application Features

- Web interface or headless mode
- Single-test or continuous test mode with Instant results
- Auto-start on cable insertion
- Paddleboard or complete cable modes
- Tabular data or signal integrity eye diagrams

Hardware Features

- Optional Advanced Cable Tester Mounting Plate for permanent test stations

Requirements

- Promira™ Serial Platform

Package Includes

- Advanced Cable Tester Application (via download)
- (1) Advanced Cable Tester Hardware
- (1) 34-Pin: 34-Pin Header Cable 40 mm
- Optional adapters available for testing cables terminated in USB Standard-A, USB Micro-B, and Lightning plugs

DC Characteristics

- Power Consumption: 900 mA @ 5 V with Promira platform

Operating Temperature

- 10°–35° C (50°–95° F)

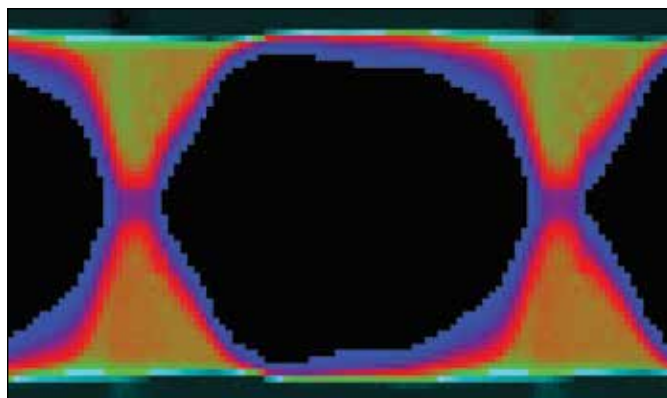|		Category	Signals	Testing
Level 2 Application Capabilities	Level 1 Application Capabilities	SuperSpeed	SSTX1, SSTX2, SSRX1, SSRX2	Basic continuity
		USB 2.0	D+/D−	Basic continuity
		Power	VBUS, GND	DC resistance measured of each pin and cable as a whole ±10mΩ accuracy, IR drop calculated for group
		Continuity	SBU1/SBU2	Shorts/Opens
		E-Marker	CC1/CC2	Operation tested, parameters validated
	SuperSpeed		SSTX1, SSTX2, SSRX1, SSRX2	Signal integrity & eye diagrams at 5 Gbps & 10 Gbps
	USB 2.0		D+/D−	Signal integrity & eye diagrams at 480 Mbps

Dimensions (W x D x L)

- 77.5 x 29.2 x 115.6 mm (3.05 x 1.15 x 4.55 in)

Weight

- 125 g (4.41 oz)

Learn more.
www.totalphase.com/cabletester

Ordering information

Advanced Cable Tester
(Application Level 1 includes free hardware)

Part Number	TP603010
Country of Origin	USA
HTS	8543200000
ECCN	EAR99

Related Products	Part Number
Promira Serial Platform	TP500110
ACT Level 2 Application	TP603110
ACT Adapter: USB 3.1 Micro-B	TP513210
ACT Adapter: USB 3.1 Standard-A	TP513110
ACT Mounting Plate	TP512410

Eye diagram captured with Signal Integrity option