

Mercury[™] T2C & T2P USB 2.0 Type-C[™] Power Delivery Protocol Analyzer

Key Features

• Supports USB Power Delivery 2.0 and 3.0

Captures all CC and PD events and displays them in the easy-to-understand CATC Trace view

- Supports USB 2.0 Capable of capturing all USB 2.0 speeds (LS, FS, HS) over Type-A, B, & C devices
- Portable and Affordable Compact bus-powered system weighs under 8 oz.
- 256/512 MB Recording Memory Extend capture time with spool-to-disk recording (512 MB for T2P)
- High Impedance probe
 Non-intrusive probe preserves real world
 signal and timing conditions
- Advanced Triggering Isolates important traffic, specific errors or patterns
- Extensive Decodes

Mass storage, Bluetooth HCl, Hub, PTP/ Still Image, Printer, Human Interface Device (HID), Audio, Video, Communication and more

- Hardware Filtering
 Automatically exclude non-essential traffic
- Event Reporting Quickly identify and track error rates, abnormal bus activity or timing conditions
- Power Tracker[™]
 VBUS, VCONN, & CC power analysis (T2P only)
- SBU Capture Option Mercury T2P can decode SBU back-channel messages for Thunderbolt-3™ (LSTX) and DisplayPort™ (AUX)

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The Teledyne LeCroy Mercury T2C and T2P add USB Type-C and Power Delivery 3.0 support to the industry's smallest and most affordable hardware-based USB 2.0 protocol analyzers. The Mercury combines the de-facto standard CATC Trace[™] display, USB class decoding and Power Delivery 3.0 support in an analyzer that fits in a shirt pocket.

View and Understand USB Protocol

Featuring the industry-leading CATC Trace[™] expert analysis software, the Mercury system provides an easy-to-use display that graphically decodes Power Delivery 3.0 protocol, in addition to USB 2.0 protocol traffic. With the Standard or Advanced edition, all protocol layers can be expanded to show the underlying transactions and packets. Tooltips help explain protocol events making it easier for non-experts to identify errors.

Real Time Triggering

Isolating specific protocol events with real time triggering is essential to capturing intermittent problems. The Mercury system provides sophisticated triggering with dragand-drop selections for PID type, data patterns, standard requests, errors and bus events. The Mercury features up to 512 MB of on-board memory and supports spool-to-disk capture for extended recording.

USB Power Delivery Support

The Mercury system supports USB Type-C and BMC Power Delivery 3.0 with capture and decode of all Power Delivery packets. View all PD negotiations over the CC wire including VDM's, role swaps, and entry/exit from alternate modes. The Mercury T2P provides all the PD support plus Power Tracker for vBUS & vCONN analysis and 512MB

recording memory.

Find the Issues Fast

The Mercury system provides many mechanisms to measure and report on USB traffic. The Bus Utilization display shows data, packet length and bus usage by device. Using the Traffic Summary window, users can evaluate statistical reports at a glance or navigate to individual fields. Real time statistics show throughput by endpoint.



The CATC Trace display uses collapsible headers to group all packets that are part of a single transfer

| Detail View provides pack details | | Vitre: Vitre:< | Capture and display packets on the CC (Configuration |
|--|--|---|--|
| | Pasted ++ Print Read 0.054 101 000 | | Channel) wire |
| T7 Paster: Dof Family Concentration Paster: Dore Torre Tor | 41 Potent A1 PD Date Nag Type Catte Rug (Mag IC) Vendor Defined DF ar UFP 0 Patient Mag Type Catte Rug (Mag IC) Catte Rug (Mag | One One One One One One Test Venter One One Test Venter One | Davies Cap Hear Cap |
| Terretory Image: Second Construction Co | 0 | | Capture and display Vendor Defined Messages (VDM) |
| Image: Version 1 Image: Version 1< | C 222 428 500 C 222 428 500 C 222 428 500 C 222 428 500 C 202 428 500 C 202 428 C 202 C 202 C 202 C 20 C 202 C 20 C 202 | Control Pres Vice DTOCK 8 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| 2 1 Statusn/a Record Generate Report Status / Go to Trigger Ctri-Shift | | WIT TRA Comparison Comparison <thcomparison< th=""> Comparison</thcomparison<> | 2 1 0 404 10 2 |
| 🔍 🔍 🐭 🕄 👪 👪 2% 🖕 1 | 8-8-8-8-8 | Tainatato and an free Mag 10 Chess 10 20 Chess 2 967 417 000 | |
| Trace View Go to Packet/Iransaction/Iranster Ctri Go to Marker Ctri- | +G +M • | Constraining markets not set | |
| 4 Packets Host: A F Sync Go to USB 2.0 | • PID | • 7,220,000 ms | |
| Packet Hold: A Bync Go to USB 3.1 SS and SS+ | ANY Error/Warning Ctrl+Shi Specific Errors/Warnings | ft+2 | |
| Packet Host: A Synce Go to Channel | Data Length | • | |
| 5 Camera 00000001 Go to SCSI | Addr & Endp | • 4 | |
| 6 Gamera PIS 00000001 M Find | Split HubAddr & Port | Mage and a set of the set | vBus power draw is |
| Zero Time Search [™] Since B Find Next | On-The-Go | HNP Shift+H | shown graphically |
| ONIV SNOWS EVENTS Search Direction Forw | ard Transfer Standard Request Type | SRP Shift+Q | and synchronized |
| That occur in the trace | Pks Transfer Type | Host : A Ctrl+Shift+A | with protocol events |
| 9 Camera 00000001 0xD2 18 bytes 0xESFA 250.000 ns 179 | Bits (23 Bytes) 565.330 ns 1.517 1 | 91 300 Host : 8 Ctrl+Shift+B | (Mercury T2P only) |

| Feature Comparison | | Mercury T2C USB Power Delivery | Mercury T2C Standard USB 2.0 | Mercury T2C Advanced USB 2.0 | Mercury T2P Advanced USB 2.0 | Specifications | |
|-------------------------|--|-----------------------------------|---------------------------------|---------------------------------|---------------------------------------|----------------------------|---|
| | | USB-TMPD-M02-X | USB-TMS2-M02-X | USB-TMA2-M02-X | USB-TMAP2-M03-X | Host Requirements | Mircosoft [®] Windows 7, Windows 8.1 or Windows 10 |
| US | B2.0 / USB1.1 Recording | | ✓ | ✓ | ✓ | | Packet Identifier, Token Pattern, |
| Spool-to-Disk Recording | | ✓ | ✓ | ✓ | ~ | Standard Trigger Events | Frame Pattern, Device Request, Data Pattern, Bus Conditions, Errors, Transactions, Data Length, |
| Recording Memory | | 256 MB | 256 MB | 256 MB | 512MB | | |
| US | B 2.0 Event Triggering | | ✓ | ✓ | ~ | | Splits, PD Messages, Type-C logical states |
| | PID Type and Dev Address | | ~ | ~ | ~ | Reporting & | Packet Level, Transaction Level, Transfer Level, Error Reports |
| | Data Pattern | | ✓ | ✓ | ✓ | Statistics | |
| | Max States per Sequence | | 4 | 7 | 7 | Recording Memory Size | Mercury T2C: 256 MB Mercury T2P: 512 MB |
| | Max Number of Sequences | | 2 | 2 | 2 | | Idle: 460 mA (typical); Active: 500 mA (typical) (Note: assumes Vconn current required is < 50 uA) |
| Po | Power Delivery 3.0 Type-C Connectors, Cables, Adapters | ✓ | | | Ø | Power Consumption | |
| Ty | | ✓ | ✓ | ✓ | ~ | | |
| | B Real-time Statistics (RTS) | | 1 | 1 | 1 | Connectors | USB Type-C |
| Ex | Export to .CSV (Packet Layer) | | | √ | · · · · · · · · · · · · · · · · · · · | Tommoroturo | Operating: 0°C to 55°C (32°F to 131°F) |
| Automation API | | Ø | | ✓ | ✓ | Temperature | Non-Operating: -20°C to 80°C (-4°F to 176°F) |
| Ve | Verification Script Engine (VSE) | | | ✓ | ✓ | | Operating: 10% to 90% non- |
| Power Tracker | | | | | ✓ | Humidity | condensing |
| Di | splayPort™ AUX capture (SBU) | | | | Ø | | Mercury T2C: 80 x 90 x 24 mm |
| Th | underbolt-3™ (LSTX) Decoding | | | | Ø | Dimensions | (3.0 x 3.0 x 1) Mercury T2P: 80 x 123 x 24 mm (3.0" x 4.8" x 1") |
| Ø | Can be added with upgrade | | | | | Net Weight | Mercury T2C: 158g (5.8 oz) Mercury T2P: 220g (7.7 oz) |





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