

# 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 HCI, 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)

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

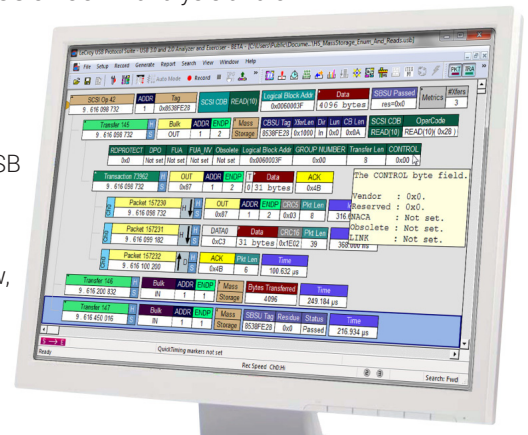
Isolating specific protocol events with real time triggering is essential to capturing intermittent problems. The Mercury system provides sophisticated triggering with drag-and-drop selections for PID type, data patterns, standard requests, errors and bus events. The Mercury features up to 512 MB of 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 packet details**

**Tooltips explain protocol events**

**Capture and display packets on the CC (Configuration Channel) wire**

**Capture and display Vendor Defined Messages (VDM)**

**Zero Time Search™ only shows events that occur in the trace**

**vBus power draw is shown graphically and synchronized with protocol events (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
		USB-TMPD-M02-X	USB-TMS2-M02-X	USB-TMA2-M02-X	USB-TMAP2-M03-X
USB2.0 / USB1.1 Recording		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spool-to-Disk Recording		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Recording Memory		256 MB	256 MB	256 MB	512MB
USB 2.0 Event Triggering		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PID Type and Dev Address	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Data Pattern	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Max States per Sequence	<input checked="" type="checkbox"/>	4	7	7
	Max Number of Sequences	<input checked="" type="checkbox"/>	2	2	2
Power Delivery 3.0		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Type-C Connectors, Cables, Adapters		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
USB Real-time Statistics (RTS)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Export to .CSV (Packet Layer)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Automation API		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Verification Script Engine (VSE)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Power Tracker					<input checked="" type="checkbox"/>
DisplayPort™ AUX capture (SBU)					<input checked="" type="checkbox"/>

Can be added with upgrade

Specifications	
Host Requirements	Microsoft® Windows 7, Windows 8.1 or Windows 10
Standard Trigger Events	Packet Identifier, Token Pattern, Frame Pattern, Device Request, Data Pattern, Bus Conditions, Errors, Transactions, Data Length, Splits, PD Messages, Type-C logical states
Reporting & Statistics	Packet Level, Transaction Level, Transfer Level, Error Reports
Recording Memory Size	Mercury T2C: 256 MB Mercury T2P: 512 MB
Power Consumption	Idle: 460 mA (typical); Active: 500 mA (typical) (Note: assumes Vconn current required is < 50 uA)
Connectors	USB Type-C
Temperature	Operating: 0°C to 55°C (32°F to 131°F) Non-Operating: -20°C to 80°C (-4°F to 176°F)
Humidity	Operating: 10% to 90% non-condensing
Dimensions	Mercury T2C: 80 x 90 x 24 mm (3.0" x 3.6" x 1") Mercury T2P: 80 x 123 x 24 mm (3.0" x 4.8" x 1")
Net Weight	Mercury T2C: 158g (5.8 oz) Mercury T2P: 220g (7.7 oz)



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