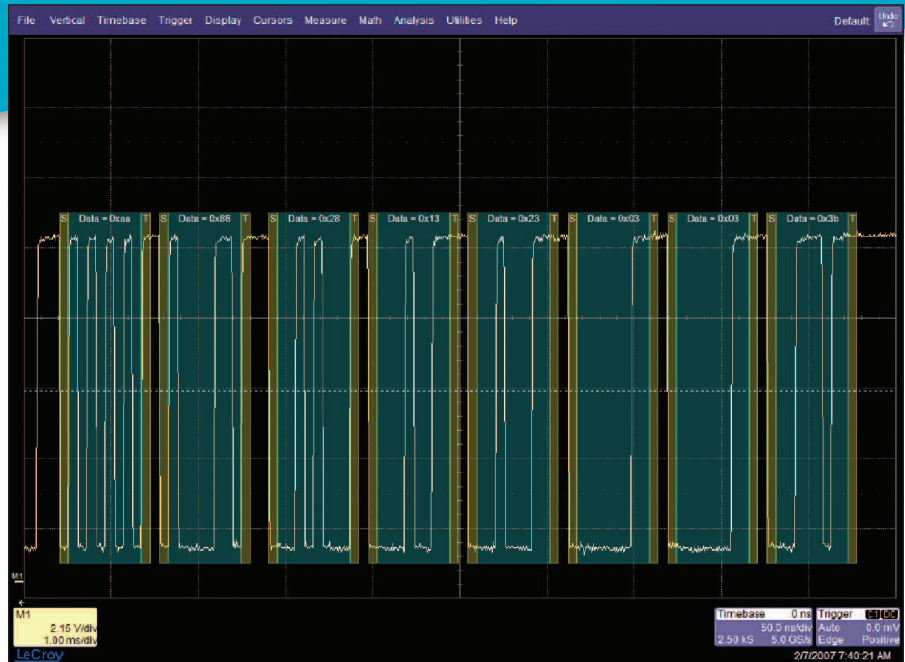


## UART-RS232bus TD Trigger and Decode Option

### Leading Features

- Both generic UART and RS-232 protocols supported
- Supports UART Address (9-bit) Byte triggering
- Conditional DATA triggering (=, not =, >, >=, <, <=, <>, in range, out of range). Select DATA location anywhere in a maximum 2048 byte sequence
- Trigger and decode on user-defined proprietary protocols based on a UART backbone
- Decode is performed quickly, even on long records, using advanced software algorithms
- Hexadecimal, Binary, or ASCII decodes (user selectable)
- Easily view the decoded data with an intuitive color-coded decode overlay
- Convenient table display with quick “zoom to byte” capability
- Quick Search capability for specific message packets
- Available in WaveRunner Xi or WaveSurfer Xs



Trigger on exactly the bytes you want with UART address byte and conditional DATA triggering. Apply a color-coded, easy-to-understand decode over your DATA signal. Search for and find specific bytes in long acquisitions.

### Full UART and RS-232 Capability

Complete support for any configuration of UART and standard RS-232. Generic UART is commonly used as the backbone for proprietary protocols, and the flexible setup configuration allows definition to meet your exact need.

### UART Address Byte Triggering

Oftentimes, UART is used with 9 data bits (8+1) with the 9th bit acting as the ‘Alert’ address byte marker when forced ON, and subsequent bytes are data bytes with the 9th bit forced OFF. The LeCroy UART-RS232bus TD option supports triggering and decoding on these 9-bit formats.

### Powerful Conditional Data Triggering

Completely isolate specific events for better understanding and debug. Use a conditional UART or RS-232 DATA trigger to select a range of DATA values to trigger on, not just a single DATA value.

### The Most Intuitive Decode

Patented software algorithms deconstruct the waveform into protocol decode

information, then overlay the decoded data on the waveform. Depending on the timebase setting or zoom ratio, the decode information is condensed or expanded to better assist in understanding events during short or long acquisitions. Various sections of the protocol are color-coded to make it easy to understand. The decode operation is fast—even with long acquisitions. The user can choose to decode into Hex, Binary, or ASCII formats.

### Convenient Table Display Summarizes Results

Turn your oscilloscope into a protocol analyzer with the Table display of decoded information. Custom configure the Table to display only the information you want and export Table data to an Excel file. Touch a message in the table and automatically zoom for detail.

### Search and Zoom

Data values can be quickly located by searching on a specific Data value. In a long acquisition, pressing NEXT advances the single byte to the byte right or left of the current message.

# Specifications and Ordering Information

## Specifications

	<b>Definition</b>		
Protocol Setup	<table border="0"> <tr> <td style="vertical-align: top;"> <b>For UART</b>                      Select BitRate                      Select # Data Bits (5-9)                      Select Parity (Odd, Even, None)                      Select # Stop Bits (1, 1.5, 2)                      Select Bit Order (MSB or LSB)                      Select Polarity (IdleLow or IdleHigh)                 </td> <td style="vertical-align: top; padding-left: 20px;"> <b>For RS-232</b>                      Select BitRate                      Select # Data Bits (5-8)                      Select Parity (Odd, Even, None)                      Select # Stop Bits (1, 1.5, 2)                 </td> </tr> </table>	<b>For UART</b> Select BitRate Select # Data Bits (5-9) Select Parity (Odd, Even, None) Select # Stop Bits (1, 1.5, 2) Select Bit Order (MSB or LSB) Select Polarity (IdleLow or IdleHigh)	<b>For RS-232</b> Select BitRate Select # Data Bits (5-8) Select Parity (Odd, Even, None) Select # Stop Bits (1, 1.5, 2)
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	<b>Decode Capability</b>		
Format	Hexadecimal, Binary, or ASCII		
Decode Setup	Threshold definition required. Default is to Percent amplitude. Select BitRate, # Data Bits, Parity, # Stop Bits, Bit Order, and Polarity (for RS-232, no Bit Order or Polarity setup).		
Decode Input	Any analog Channel, Memory, or Math trace.		
# of Decoded Waveforms	<b>Up to 4 busses may be decoded at one time.</b> In addition, zooms can be displayed (with decoded information).		
Location	Overlaid over DATA waveform, on Grid. (Note: Use multi-grid if there is more than one decoder ON)		
Visual Aid	Color Coding for Start Bit, Stop Bit, Parity Bit, and DATA. Decode information is intelligently annotated based on timebase setting.		
	<b>Trigger Capability</b>		
Format	Hexadecimal or Binary		
Trigger Setup	Trigger on DATA or Parity ERROR		
ADDRESS (ID) Condition Setup	Not Applicable		
DATA Condition Setup	<=, <, =, >, >=, <>, in range, out of range, don't care.		
DATA Setup	Hexadecimal: # Data Bytes = 0 to 12. Data can be defined by nibble. Binary: Any combination of 0,1, or X for 1-96 bits. May specify particular data position anywhere in a 2048 byte sequence.		
Bit Rates	Any from 300 b/s to 10 Mb/s (User settable)		
Trigger Input	Any analog Channel or the EXT input.		
Trigger Design	Internal to oscilloscope, settable like any other oscilloscope trigger.		
	<b>Search Capability</b>		
Pattern Search	Search by DATA in Hexadecimal formats, or for Next ERROR.		
	<b>Other</b>		
Compatible With ...	TD (Trigger and Decode) Option fully compatible with WaveRunner Xi and WaveSurfer Xs (retrofit kits available and required for some WaveRunner Xi and WaveSurfer Xs oscilloscopes). D (Decode) Option fully compatible with WR6000, WP7000, and WM8000 Series.		

## Ordering Information

### Product Description

UART and RS-232 Trigger and Decode Option      UART-RS232bus TD\*  
 UART and RS-232 Decode only Option              UART-RS232bus D<sup>†</sup>  
 Retrofit Kit for WaveRunner Xi or  
 WaveSurfer Xs so that serial number  
 earlier than LCRY0608 (WaveRunner Xi) or  
 LCRY0304 (WaveSurfer Xs) can support  
 the Trigger and Decode Option.                      FPGA-RK

\* Requires WaveRunner Xi or WaveSurfer Xs oscilloscope with serial number LCRY0608 (for WaveRunner Xi) or LCRY0304 (for WaveSurfer Xs) or later.

<sup>†</sup> Available only on WaveRunner 6000, WavePro 7000, and WaveMaster 8000 Series oscilloscopes.

### Product Code

### Customer Service

LeCroy oscilloscopes and probes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years, and our probes are warranted for one year.

This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to latest software at no charge



1-800-5-LeCroy  
[www.lecroy.com](http://www.lecroy.com)

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**To find the most convenient one visit [www.lecroy.com](http://www.lecroy.com)**