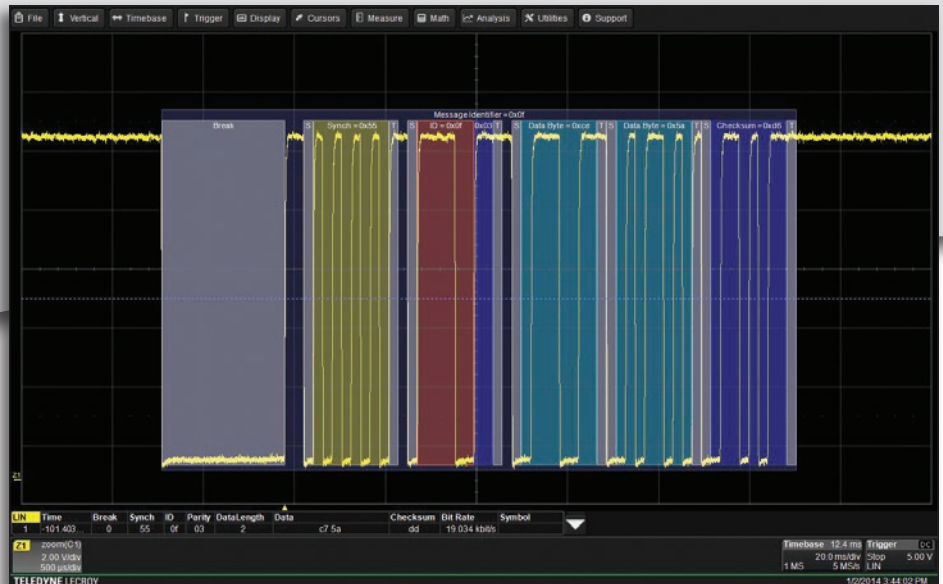


# LINbus Trigger and Decode

## Key Features

- LIN 1.3, 2.x, J2602 Supported
- Powerful and flexible triggering, including triggers for:
  - Break (Start of Message)
  - Message ID
  - Message ID + DATA
  - Error Frame
- Powerful conditional DATA triggering (>, >=, <, <=, <>, in range, out of range)
- Error Frame triggering supports multiple error frame types:
  - Checksum
  - Header Parity
  - Sync Byte
  - Any combination of the above
- Decode is performed quickly, even on long records, using advanced software algorithms
- Hexadecimal decodes
- Easily learn the LIN protocol with intuitive color-coded decode overlay
- Convenient table display with quick “zoom to message” capability
- Quick Search capability for specific message packets



Trigger on exactly the message packets you want with powerful conditional DATA triggering. Apply a color-coded, easy-to-understand, decode over your LIN messages. Search for and find specific message packets in long acquisitions.

## Complete LIN Triggering—No Compromises

Full support for LIN 1.3, 2.x, and J2602 ensures that no matter what version of LIN you use, you'll be able to trigger and decode. In addition, triggering provides complete capability to trigger on any event with completely definable Message ID and DATA triggers, or flexible Error Frame triggering.

## Powerful Conditional Data Triggering

Completely isolate specific events for better understanding and debug. Use a conditional LIN 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, especially for users new to LIN serial data. The decode operation is fast—even with long acquisitions. LIN buses with mixed LIN versions are easily and completely decoded.

## 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

LIN messages can be quickly located by searching on Break, ID, or Error. In a long acquisition, pressing NEXT advances the single message view to the message to the right or left of the current message.

# SPECIFICATIONS AND ORDERING INFORMATION

## Specifications

Definition	
<b>Protocol Setup</b>	Select LIN Version 1.3, 2.x, or SAE J2602. Select BitRate (1.2, 2.4, 4.8, 9.6, 10.417, 19.2 kb/s, or user-defined 1-20 kb/s) Decodes LIN messages on busses with mixed LIN Versions.
Decode Capability	
<b>Format</b>	Hexadecimal
<b>Decode Setup</b>	Threshold definition required. Default is to Percent amplitude. Select BitRate.
<b>Decode Input</b>	Any analog Channel, Memory, or Math trace.
<b># of Decode Waveforms</b>	<b>Up to 4 busses may be decoded at one time.</b> In addition, zooms can be displayed (with decoded information).
<b>Location</b>	Overlaid over DATA waveform, on Grid. (Note: Use multi-grid if there is more than one decoder ON)
<b>Visual Aid</b>	Color Coding for Start Bit, Stop Bit, Parity Bit, and DATA. Decode information is intelligently annotated based on timebase setting.
Trigger Capability	
<b>Format</b>	Hexadecimal
<b>Trigger Setup</b>	Trigger on (Sync) Break (Start of Message), Frame ID, Frame ID+DATA, Error Frame (Any combination of Checksum, Header Parity, or Sync Byte error frames)
<b>ADDRESS (ID) Condition Setup</b>	Specify one ADDRESS with condition of =
<b>DATA Condition Setup</b>	<b>&lt;=, &lt;, =, &gt;, &gt;=, &lt;&gt;, in range, out of range, don't care.</b>
<b>DATA Setup</b>	Hexadecimal: # Data Bytes = 0 to 8. Data can be defined by nibble. Triggers on that data pattern regardless of position or in user settable location.
<b>Bit Rates</b>	1.2, 2.4, 4.8, 9.6, 10.417, 19.2 kb/s selectable. Any value from 1 kb/s to 20 kb/s may be entered.
<b>Trigger Input</b>	Any analog Channel or the EXT input.
<b>Trigger Design</b>	Internal to oscilloscope, settable like any other oscilloscope trigger.
Search Capability	
<b>Pattern Search</b>	Search by Next Frame, Next ID in Hexadecimal format, or Next Error Frame.
Other	
<b>Compatible With ...</b>	LINbus TD is compatible with WaveSurfer MXs-B and MSO MXs-B, HDO4000, WaveRunner Xi-A and 6 Zi, HDO6000, WavePro 7 Zi/Zi-A, WaveMaster 8 Zi/Zi-A, Labmaster 9 Zi-a and LabMaster 10 Zi oscilloscopes.

## Ordering Information

### Product Description

### Product Code

LIN Trigger and Decode Option for WaveSurfer MXs-B WSXs-and MSO MXs-B Oscilloscopes	WSXs-LINbus TD
LIN Trigger and Decode Option for HDO4000 Oscilloscopes	HDO4K-LINbus TD
LIN Trigger and Decode Option for WaveRunner Xi-A Oscilloscopes	WRXi-LINbus TD
LIN Trigger and Decode Option for WaveRunner 6 Zi Oscilloscopes	WR6Zi-LINbus TD
LIN Trigger and Decode Option for HDO6000 Oscilloscopes	HDO6K-LINbus TD
LIN Trigger and Decode Option for WavePro 7 Zi-A Oscilloscopes	WPZi-LINbus TD
LIN Trigger and Decode Option for WaveMaster 8 Zi-A Oscilloscopes	WM8Zi-LINbus TD
LIN Trigger and Decode Option for LabMaster 9 Zi-A Oscilloscopes	LM9Zi-LINbus TD
LIN Decode Option for LabMaster 10 Zi Oscilloscopes	LM10Zi-LINbus D
LIN Decode only Option	LINbus D <sup>†</sup>

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

### Customer Service

Teledyne 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



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