LeCroy

MIL-STD-1553
Trigger and Decode



Color-coded overlays help identify the transfer and word type of the 1553 bus messages. Data values are displayed above the waveform that dynamically change depending on the zoom window.

Features and Benefits

- **Correlate analog waveform with protocol decode on one screen**
- **Support for MIL-STD-1553 versions A and B**
- **View decoded data in Binary or Hexadecimal with an intuitive color-coded decode overlay**
- **Decode and trigger on Command, Data, and Status words**
- **Decode and trigger on all 10 message transfer types**
- **Supports triggering for Word, Transfer, and Errors**
- **Portable solution for easy transfer to lab and field testing**
- **Powerful and flexible conditional triggering (=, not =, >, >=, <, <=, in range, out of range)**
- **Decode information expands as the timebase is adjusted or zoomed**
- **Convenient table display with quick "zoom to byte" capability**
- **Quick Search capability for specific message packets**

The 1553 TD Trigger and Decode package is the ideal tool for system level protocol debug as well as problem solving for signal quality issues. The 1553 TD trigger and decode package adds a unique set of tools to your oscilloscope, simplifying how you design and debug MIL-STD-1553 systems. The powerful internal 1553 TD trigger quickly locates specific transfer or word types and overlays the decoded data directly on top of the physical layer signal. LeCroy's integration of trigger and data decoding shortens your MIL-STD-1553 debug time.

Built-in Oscilloscope Trigger Makes Setup Easy

Isolate specific MIL-STD-1553 messages with the built-in oscilloscope trigger. Powerful error triggers identify areas to quickly pinpoint failure locations. Use the conditional address trigger to identify a faulty RT on the bus to reduce debug time.

Powerful Conditional Triggering

Apply powerful and flexible conditional triggering to completely isolate a specific RT Address, Sub Address Data Value, and Mode Code.

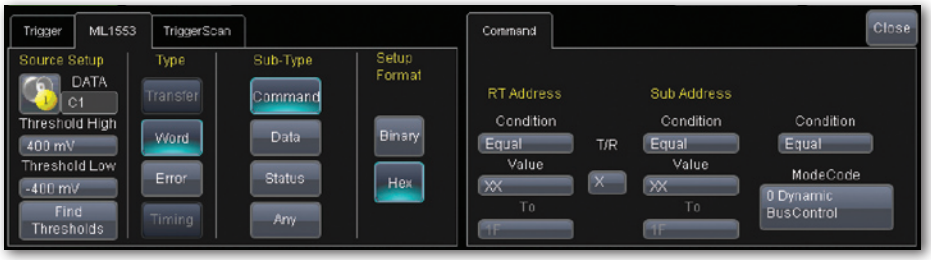
The Most Intuitive Decode

1553 TD uses color-coded overlays on various sections of the protocol for an easy-to-understand visual display. Depending on the timebase setting or the amount of zoom, the decode information is condensed or expanded to better assist in understanding events during short or long acquisitions. 1553 TD features both Transfer level and Word level decoding to offer the most flexibility to the debug process. The decode operation is fast—even with long acquisitions. The user can choose to decode into Hex, Binary, ASCII, or Decimal.

POWERFUL TRIGGERING, INTUITIVE DECODING

Flexible Triggering

The 1553 TD trigger can be configured at the transfer or word level to provide the right level of triggering. In addition, the error triggers are able to quickly locate the cause of protocol errors at either the word or transfer level.



Word level triggering allows conditional RT Address and Sub Address entry.

Convenient Table Display Summarizes Results

Turn your oscilloscope into a protocol analyzer with the table display of protocol information. Custom configure the Table to display the information you want, and export Table data to an Excel file. Touch the message in the table and automatically zoom for detail. In all cases, the Table never obscures your waveform.

Idx	Time	Type	Summary	Resp...	Data	IMG
1	-26 ns	BC-RT (Rcv)	RT 9: 2 DW	4.35 µs	0x0009 000a	0.00 µs
2	95.0 µs	RT-BC (Xmit)	RT 14 to BC: 3 DW	4.49 µs	0x0006 0005 0004	10.7 µs
3	211.7 µs	RT-RT	RT 13 to RT 15: 2 DW	4.31 µs	0x0013 0014	12.2 µs
4	354.8 µs	Cmd	RT 0: Transmit Status Word	4.45 µs		14.4 µs
5	415.5 µs	Cmd (Xmit)	RT 0: Transmit Last Command 1 DW	4.51 µs	0x0000	16.2 µs
6	498.4 µs	Cmd (Rcv)	RT 30: Synchronize 1 DW	4.62 µs	0xdcba	18.5 µs
7	583.0 µs	BC-RT(S)	B'cast 3 DW	0.00 µs	0x000c 000d 000e	20.0 µs
8	681.5 µs	RT-RT(S)	B'cast from RT 5: 2 DW	4.37 µs	0x000c 000d	18.5 µs
9	802.4 µs	Cmd(S)	B'cast Transmitter Shutdown	0.00 µs		16.5 µs

Display values in an easy-to-understand table. Touch a row to zoom or export to Excel with the touch of a button.

Search and Zoom

Search through a long record of decoded data by entering any of the 28 available search criteria by entering a value, or simply finding the next occurrence.



Search for all data values of 00x3 within the entire record. View next, previous, or play through all of the occurrences.

SPECIFICATIONS

MIL-STD-1553

	Definition
Protocol Setup	Select data source.
	Decode Capability
Format	Hexadecimal, Binary
Decode Setup	Threshold definition required. Default is to percent amplitude.
Decode Input	Any analog Channel, Memory or Math trace.
# of Decoded Waveforms	Up to 4 buses may be decoded at one time. In addition, zooms can be displayed (with decoded information).
Location	Overlayed over DATA waveform, on Grid. (Note: Use multi-grid if there is more than one decoder ON)
Visual Aid	Color coding for Frame, Break, Synch, ID, ID Parity, Data, CRC. Decode information is intelligently annotated based on timebase setting.
	Trigger Capability
Format	Hexadecimal, Binary
Trigger Setup	Trigger on Address, Address & Data, Status, Error, Response Time, IMG (Intermessage Gap Time). These can be further qualified by selecting the message type: BC-RT, RT-BC, RT-RT, Broadcast.
ADDRESS (ID) Condition Setup	Specify one terminal address — all are 5 bits Specify one subaddress — all are 5 bits Specify word count/mode code — all are 5 bits Selection for Transmit/Receive bit as 0/1/X
DATA Condition Setup	<=, <, =, >, >=, <>, in range, out of range, don't care.
DATA Setup	Hexadecimal: # Data Bytes = 0 to 16. Data can be defined by nibble. Triggers on that data pattern regardless of position or in user settable location. Binary: Any combination of 0,1, or X for 1-64 bits. Triggers on that data pattern regardless of position or in user settable location.
Status Setup	Status triggers indicated by a check box. Selection of status triggers are: Message Error, Instrumentation, Service Request, Broadcast Command Received, Busy, Subsystem Flag, Dynamic Bus Acceptance, Terminal Flag.
Error Setup	Selection of error triggers indicated by a check box. Seletion of errors listed below.
Response Time Trigger Setup	<=, <, =, >, >=, <>, in range, out of range, don't care.
Intermessage Gap Setup	<=, <, =, >, >=, <>, in range, out of range, don't care.
ACK Condition Setup	Not applicable.
Bit Rates	Any. Auto-detected.
Trigger Input	Any analog Channel or the EXT input.

SPECIFICATIONS AND ORDERING INFORMATION

MIL-STD-1553	
Trigger Design	Internal to oscilloscope, settable like any other oscilloscope trigger.
	Search Capability
Pattern Search	Search by Index, Time, Message, Transfer, Type, Summary, Sync, RT Address, Transmit/Receive Flag, Subaddress, Count, Mode Code, Parity, Response Time, RT Address Ack, Message Error, Instrumentation, Service Request Bits, Reserved Bits, Broadcast Received, Busy, Subsystem Flag, Dynamic Bus Control Accepted, Terminal Flag, Data, Intermessage Gap Time, Status, and Attributes Fields.
	Other
Compatible With…	Fully compatible with WaveMaster® 8 Zi, WavePro® 7 Zi, WaveRunner® Xi/Xi-A, and WaveSurfer® Xs/Xs-A.

Ordering Information

Product Description	Product Code
MIL-STD-1553 Trigger and Decode Option for WaveMaster 8 Zi	WM8Zi-1553 TD
MIL-STD-1553 Trigger and Decode Option for WavePro 7 Zi	WPZi-1553 TD
MIL-STD-1553 Trigger and Decode Option for WaveRunner Xi/Xi-A	WRXi-1553 TD
MIL-STD-1553 Trigger and Decode Option for WaveSurfer Xs/Xs-A	WSXs-1553 TD

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

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1-800-5-LeCroy
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Local sales offices are located throughout the world.
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