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More Information

- Serial Triggering and Analysis Application Modules
- Product Support
- MSO4000 / DPO4000
- MDO4000
- MSO3000 / DPO3000
- MDO3000
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mark table provides a tabular view of the events found during an automated search.
- Export Search Mark table data to .csv file.
- Event table shows decoded serial bus activity in a tabular, time-stamped format for quick summary of system activity.
- Export Event table data to .csv file.

Serial triggering and analysis application modules

On a serial bus, a single signal often includes address, control, data, and clock information. This can make isolating events of interest difficult. The Serial Application modules for the MDO4000C, MDO3000, and MSO/DPO2000B Series transform the oscilloscope into a robust tool for debugging serial buses with automatic trigger, decode, and search for I^2C, SPI, CAN, CAN FD, LIN, FlexRay, RS-232/422/485/UART, MIL-STD-1553, ARINC 429, I^2S/LJ/RJ/TDM, USB2, and Ethernet.
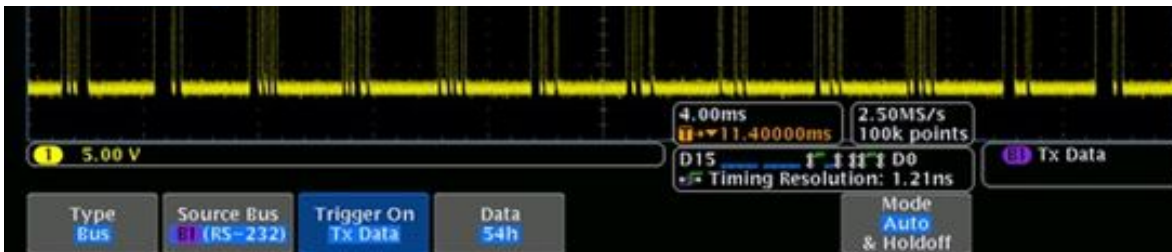
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Triggering on a specific transmit data packet going across an RS-232 bus. A complete set of triggers, including triggers for specific serial packet content, ensures you quickly capture your event of interest.

Serial triggering

Trigger on packet content such as start of packet, specific addresses, specific data content, unique identifiers, etc. on popular serial interfaces such as I^{2}C, SPI, CAN, CAN FD, LIN, FlexRay, RS-232/422/485/UART, MIL-STD-1553, ARINC 429, and I^{2}S/LJ/RJ/TDM, USB2, and Ethernet.

Bus display

Provides a higher-level, combined view of the individual signals (clock, data, chip enable, etc.) that make up your bus, making it easy to identify where packets begin and end and identifying sub-packet components such as address, data, identifier, CRC, etc.

Bus decoding

Tired of having to visually inspect the waveform to count clocks, determine if each bit is a 1 or a 0, combine bits into bytes, and determine the hex value? Let the oscilloscope with a Serial Application module do it for you! Once you've set up a bus, the oscilloscope will decode each packet on the bus, and display the value in hex, binary, decimal (LIN, MIL-STD-1553, and FlexRay, USB and Ethernet

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Color-coded display of a CAN bus, showing Start, DLC, Data, CRC, and Stop components of the serial signal.

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Simultaneously display the bus and digital waveforms. Digital waveforms show how the bus translates the individual signals based on the threshold settings (useful for making analog channels look like just 1s and 0s).

Event table

In addition to seeing decoded packet data on the bus waveform itself, you can view all captured packets in a tabular view much like you would see in a software listing. Packets are time stamped and listed consecutively with columns for each component (Address, Data, etc.).

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Event table showing decoded Identifier, DLC, DATA, and CRC for every CAN packet in a long acquisition

Search

Serial triggering is very useful for isolating the event of interest, but once you've captured it and need to analyze the surrounding data, what do you do? In the past, users had to manually scroll through the waveform counting and converting bits and looking for what caused the event. With a Serial Application module, you can enable the oscilloscope to automatically search through the acquired data for user-defined criteria including serial packet content. Each occurrence is highlighted by a search mark. Rapid navigation between marks is as simple as pressing the Previous (←) and Next (→) buttons on the oscilloscope front panel. The Search Mark table provides a tabular view of all events found during an automated search. The search mark data can be exported to a .csv file.
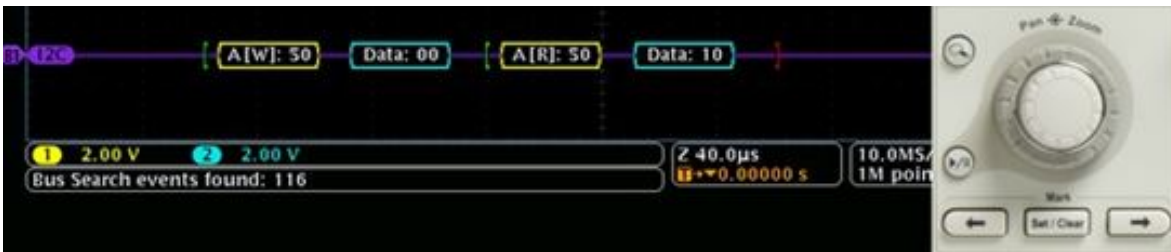
Search – I2C decode showing results from a Wave Inspector® search for Address value 50. Wave Inspector® controls provide unprecedented efficiency in viewing and navigating waveform data.

Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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