

WaveBPS

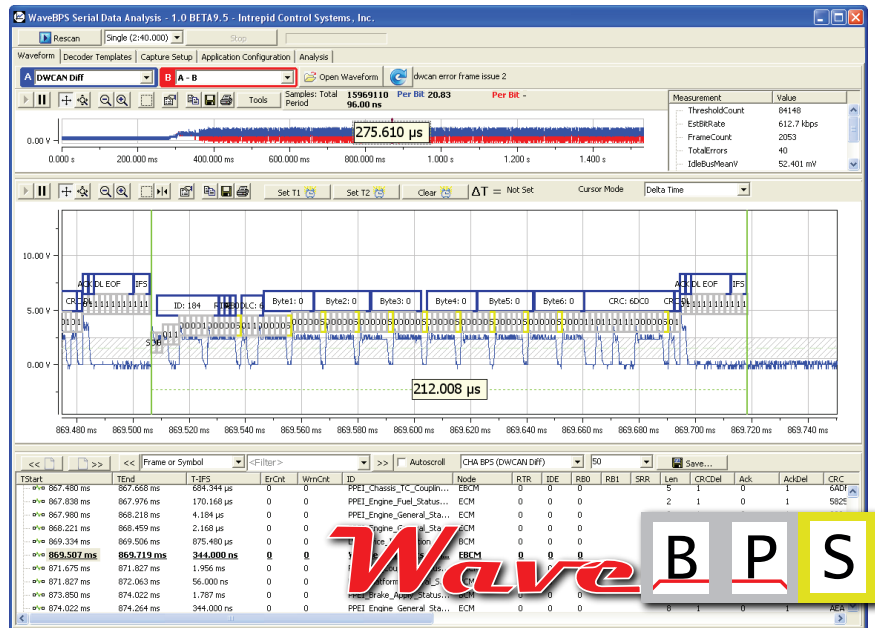
Portable Low-Level Analog Serial Data Analysis Software

In the real world, things often go wrong to the point where CAN / CAN FD bus, LIN bus, or FlexRay tools do not show enough information. You need to understand what is going on at a lower level.

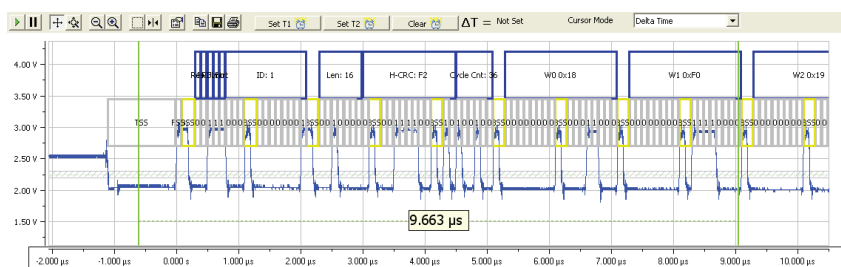
WaveBPS is an advanced tool for capturing and analyzing serial data analog waveforms like those found on the FlexRay, CAN / CAN FD, UART (J1708, K-Line, SCI, GM CGI), J1850, SPI, I2C, or LIN bus. In addition to general purpose monitoring, WaveBPS can quickly capture infrequent or intermittent protocol violations. For example, you can track down the CAN / CAN FD error frames that may occur during a crank event, while another application verifies that there are no timing violations on software-based LIN implementations.

Benefits:

- Move quickly and with less hassle by bringing your oscilloscope to the plant or vehicle
- Automatic measurements quickly find nodes causing protocol errors, saving time and improving quality
- Enhance productivity by automating testing of your ECU's analog functions
- Build your knowledge by visualizing message timing interaction between ECUs
- Save time troubleshooting the latencies of periodic messages
- Root-cause intermittent events with microsecond-accurate, script-based triggering
- Save time searching analog data captures for protocol violations
- Learn every little detail of a protocol to maximize efficiency



WaveBPS decodes analog waveforms into CAN / CAN FD, LIN, FlexRay, and UART values with powerful automatic measurements and error analysis



FlexRay decoding in WaveBPS



The PicoScope 3406D is a 128 Msample depth, 200 MHz bandwidth USB oscilloscope with advanced triggering



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WaveBPS



Missing the knob of a traditional scope?
WaveBPS supports the powerful 3Dconnexion
SpaceNavigator six-axis analog knob

Specifications

- TCP/IP server text API allows remote control of application via Windows clients and Vehicle Spy Function Blocks
- Open DLL import support allows importing any waveform data from any source
- Export support for raw analog waveforms, including efficient binary formats and CSV, for either the entire waveform or a subset
- Export to Vehicle Spy buffer format
- Waveform modification within software to create improper waveforms for error testing with Arbitrary Waveform Generators
- Import and export of WaveBPS XML configuration files
- Node Analysis can prepare statistical analysis of all network nodes for all decoders and automatic measurements
- Acquisition modes include single, multiple, and filter match capture (a multiple capture that stops when there is a filter match)
- Automatic buffer capture mode saves a raw buffer every time a filter condition is matched
- Automatic wave file playback on a filter match
- Cursor modes allow measurement of Delta Time in Seconds, Delta Time in Bits, Delta Volts, Absolute Volts, and Bus Utilization
- High Resolution Cursor allows very fine cursor control for measurements across large captures
- Autoscroll waveform based on bit rate or event with programmable rate
- Search, browse and filter based on any automatic measurement
- Powerful mouse-wheel-based waveform navigation with optional knob
- Share encrypted waveforms with WaveBPS trial edition users

Hardware Support

- Support for PicoScope 5000 series deep memory oscilloscopes: programmable capture and depth, oscilloscope probes, triggering, CAN error frame trigger, external trigger modes, and pre-trigger
- eoVI and ValueCAN device advanced protocol triggering
- Support for 3Dconnexion SpaceNavigator 3D six-axis knob

Ordering Information

Part Number	Description
WAVEBPS-PRO	PicoScope 3406B, WaveBPS, neoVI Hardware, DLC breakout, Vehicle Spy software
WAVEBPS-BASE	PicoScope 3406B, WaveBPS software
WAVEBPS-SFT	WaveBPS Software license
WAVEBPS-MAIN	1 Year Maintenance

All Decoders

- All automatic measurements include the time at which they were taken
- Clicking a measurement will zoom the view on measurement times
- Automatic measurements for every event: Time Start, Time Width, Interframe Separation, Error Count, Warning Count, ID (including message description), and Node Name
- Database support with import from Vehicle Spy software (UEF, DBC, LDF, FIBEX, etc.)
- User specified baud rate and thresholds, including inversion
- Decoder templates allow multiple customizations of each decoder with a custom description
- Supports math operations on multiple channels (A-B, A+B)

CAN / CAN FD Decoder

- Automatic Measurement for every message: CAN Remote Transmit Request, CAN Identifier Extension Bit, CAN Reserved Bit Zero, CAN Reserved Bit One, Single Wire CAN High Voltage Message, Single Wire CAN High Voltage Ack Bit, Single Wire CAN High Speed Mode Bit Rate, CAN Substitute Remote Request, Length (DLC), CAN CRC Delimiter, CAN Ack Slot, CAN Ack Delimiter, CRC Checksum, CAN Stuff Bit Count, CAN Data Section, CAN Bitrate Tolerance, Minimum Frame Voltage, Maximum Frame Voltage, CAN Acknowledgment Bit Skew, CAN Acknowledgment Bit Width, Percentage of Time For Data
- Error and warning detection for every message: SRR = 0 Error, RBO = 1 Error, DLC > 8 Error, Invalid CRC Error, CRC Del = 0 Form Error, ACK Error, ACK Del = 0 Form Error, EOF = 0 Form Error, IFS = 0 Form Error, RB1 = 1 Error, RBO = 1 Error, Bit Tolerance Limit Error, High Voltage Ack Bit warning, Partial Frame Decode Warning, Error Frame
- Automatic measurements for entire waveform: Frame Count, Error Count, Idle Bus Mean Voltage, Max Frame Voltage, Min Frame Voltage, Bus Utilization
- GMW3110 Single Wire CAN high-speed mode transition decoding
- Single Wire CAN High Voltage Threshold setting
- User settable bit tolerance and sampling point
- Satisfies bit tolerance measurements as indicated in GMW14241 (GMLAN Device Test Specification)

LIN Decoder

- Automatic Measurement for every message: LIN Sync Break In Bits, LIN Sync Waveform, LIN Slave Response Time, LIN Header Time, LIN Slave Message Time, LIN TMax Utilization, LIN Frame Length, LIN Check Sum, Data
- Error and warning detection for every message: TResponse Max Error, Message Length Error, TMax violation Error, Checksum Error, Slave Not Responding Error, Sync Error, THeader Max Error, ID Parity Error, Break Too Short, Break Too Long, Partial Frame Decode Warning
- Automatic measurements for entire waveform: Frame Count, Error Count

FlexRay Decoder

- Automatic measurement for every message: FlexRay Reserved Bit, FlexRay Payload Preamble Indicator, FlexRay Null Frame Indicator, FlexRay Sync Frame Indicator, FlexRay Startup Frame Indicator, FlexRay Channel, FlexRay Header CRC, FlexRay Cycle Count, CRC, FlexRay Transmission Start Sequence Length, FlexRay Is Dynamic Frame, Data Length in words, Data Section
- Error and warning detection for every message: Header CRC Error, CRC Error, Partial Frame Decode Warning
- Automatic measurements for entire waveform: Frame Count, Error Count
- Automatic A-B channel detection or fixed channel setting for decoder

See website for specifications on UART, J1850 VPW, I2C and SPI Decoders

Specifications subject to change; please contact Intrepid for the latest information. All trademarks are the property of their respective owners.

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