TL4134E,TL4134B,TL4234B

Acute TravelLogic

TL4kシリーズは、2020年8月販売開始の第4世代Travel Logic。立野電脳では国内で第3世代まで販売されていたOEM版も含め、Travel Logicシリーズすべてをサポートしている。ロジックアナライザ機能をベースにプロアナモードとロジアナモードをサポートする。 TL4kの上位ロジアナ製品として68/136chをサポートするLA3k+シリーズもある。

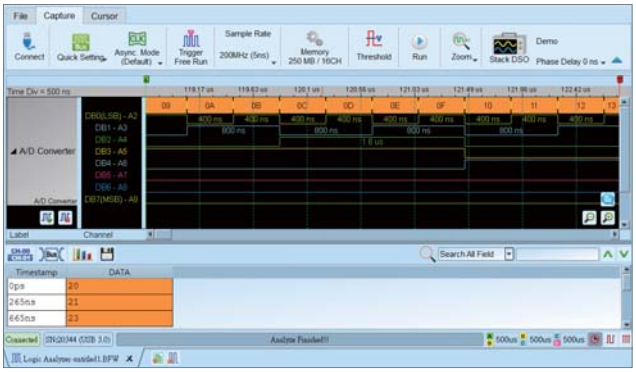
Logic Analyzer & Protocol Analyzer

123 x 76 x 21 mm³

- PC-based
- USB 3.0 Interface
- 34 Channels (Data 32ch, Clk 2ch)
- 2 GHz Timing / 250MHz State Analysis
- 8Gb Memory (Max.)
- Data logger saved to hard disk drive
- Analog Inputs (2) for Protocol Analyzer
- Stacks with Acute or another DSO to form as an MSO
- Bus Decode : BiSS-C, CAN 2.0B/CAN FD, DP_Aux[1], DMX512, EDID, eMMC 4.5, eSPI, I²C, I²S, MII, MIPI DSI LP, MIPI I3C 1.1, NAND Flash, NEC IR, Profibus, SD 3.0 (SDIO 2.0), Serial Flash, SPI, SVID[2], SWD, UART (RS232), USB1.1, USB PD 3... (100+)
- Bus Trigger I : BiSS-C, CAN2.0B/CAN FD, DP_Aux[1], I2C, I2S, MIPI I3C 1.1, SPI, UART, USB PD 3, ...
- Bus Trigger II : DALI, LPC, Mini/Micro LED, MIPI I3C 1.1, Profibus, SMBus, SVI2, USB1.1, ...
- Bus Trigger III : eMMC 4.5, eSPI, MII, RGMII, RMII, NAND Flash, SD 3.0 (SDIO 2.0), SVID[3], ...
- Protocol Analyzer I : BiSS-C, CAN2.0B/CAN FD, DP_Aux[1], I2C, I2S, MIPI I3C 1.1, SPI, USB PD 3, ...
- Protocol Analyzer II : DALI, MDIO, MIPI RFFE 3, Modbus, PMBus, Profibus, SMBus, USB1.1
- Protocol Analyzer III : eSPI, MII, RGMII, RMII, SVID[3]

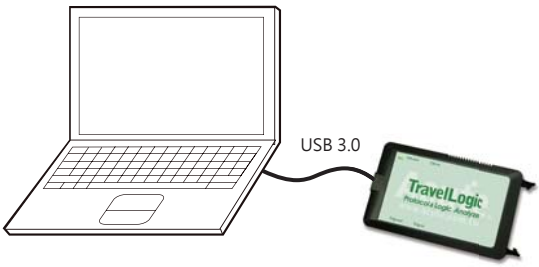
Model	Channels	Sample Rate	Memory	Bus Trigger	Protocol Analyzer
TL4134E	34	2GHz	4Gb	I	I
TL4134B	34	2GHz	4Gb	I, II	I, II
TL4234B	34	2GHz	8Gb	I, II, III	I, II, III

Software Window



System Requirements

- USB 3.0 port
- Win 7, Win 8, Win 10 (64 bit)
- PC RAM 16GB (recommended) or 8GB at least



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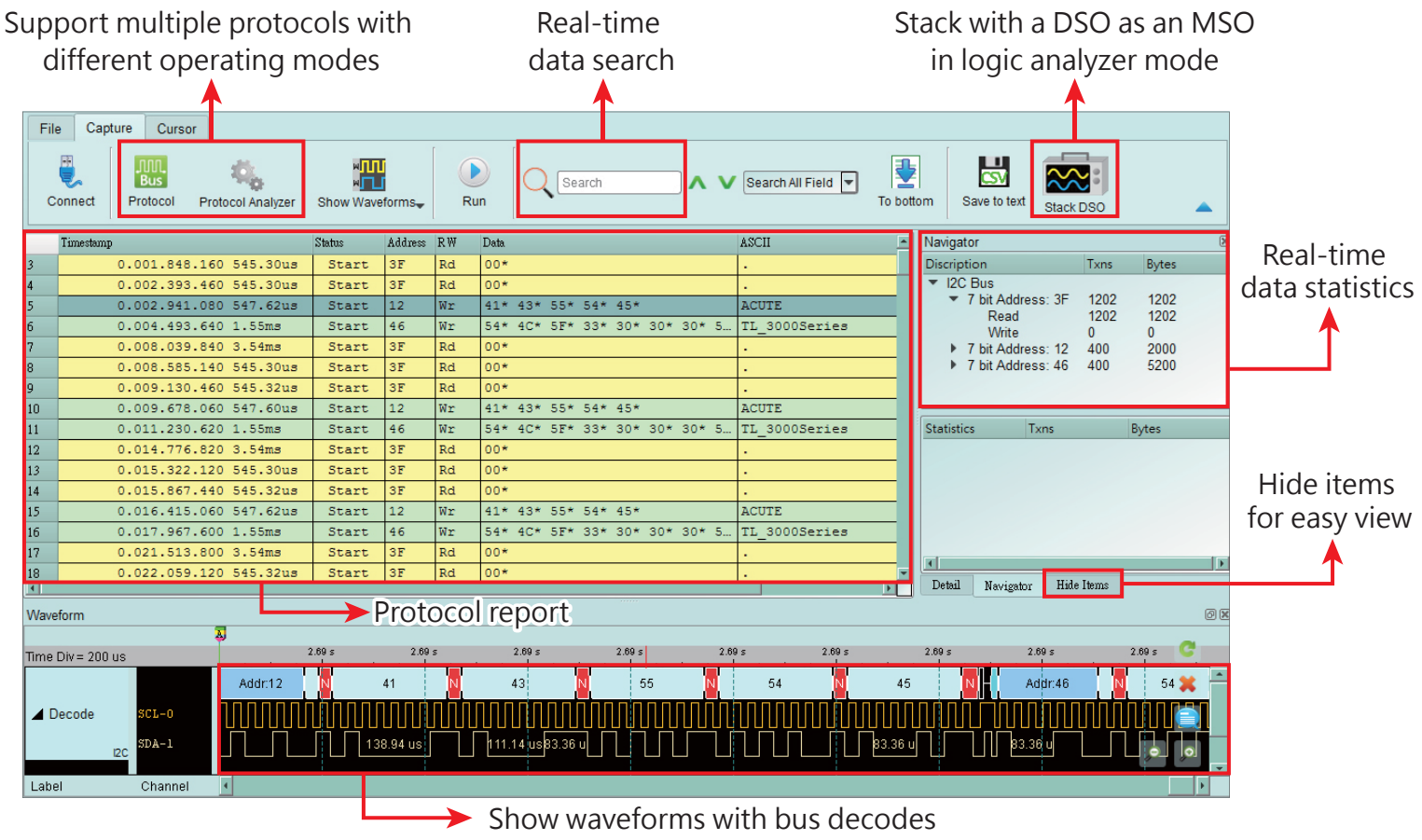
URL http : //www.dsp-tdi.com/

Protocol Analyzer: プロアナモードは一つのバスをキャプチャしながらデコード結果を順次表示します。

It is hardware decoding, may log protocol data very long time if without waveforms.
Application timing: Preliminary protocol debug.



Protocol Analyzer

Show real-time protocol data
Application timing: massive protocol data with some idles in between

Protocol Logger

Like data logger, save massive data into SSD hard drive
Application timing: massive protocol data

Protocol Monitor

Like dash cameras, record protocol data by the device's memory only
Application timing: trigger event only happens in very long time

Packing List :

TL4134E

TL4134B / TL4234B

8.5cm Lead Cable
TL4234B only

18.5cm
Lead Cable

USB 3.0 cable

Grippers
Stack cable

Handbag

Software and Manual Download links at: http://www.acute.com.tw

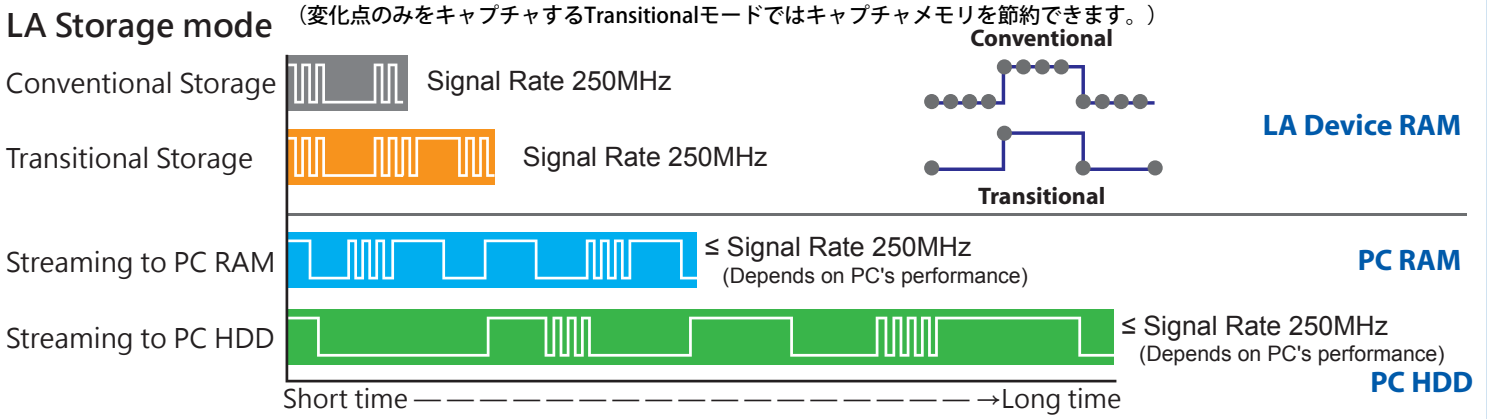
Logic Analyzer: ロジアナモードはキャプチャ停止後、波形表示とプロトコルデコード処理をして結果を表示します。

Capture digital waveforms and support bus decodes. Able to stack with a DSO to form as an MSO.

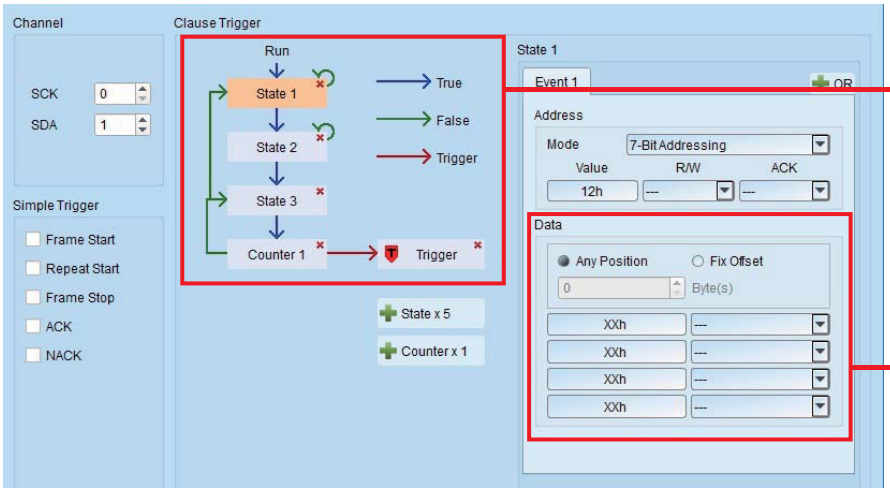
Provides multiple storage modes, users could select to have long time recording or precision acquisition.

LA Storage mode

（変化点のみをキャプチャするTransitionalモードではキャプチャメモリを節約できます。）



Flow chart bus triggers :

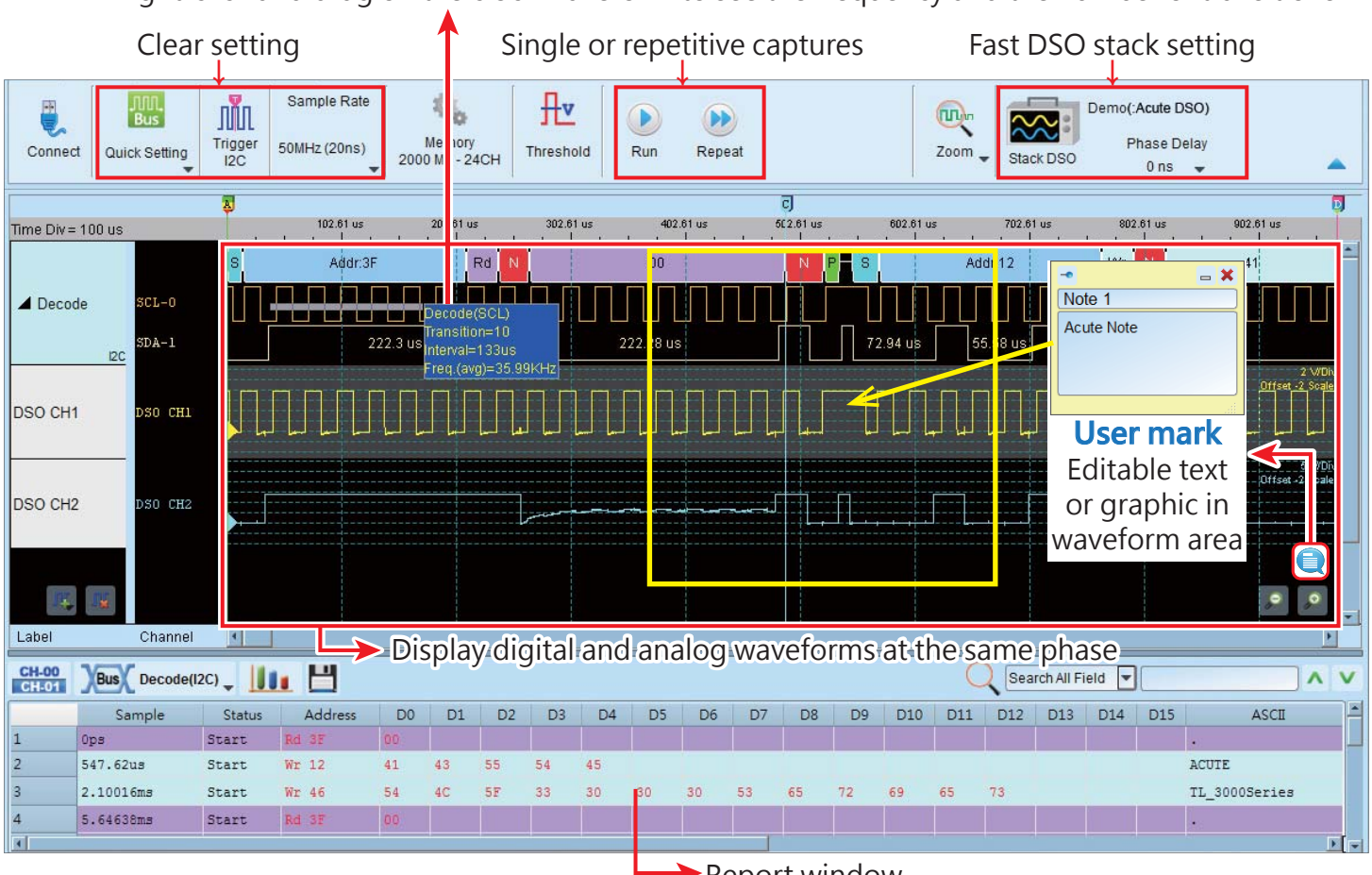


Power trigger for serial bus, 8-states flow chart setting with Counter/Timer

Detail parameters for each states

Quick View

Right-click and drag on the clock waveform to see the frequency and the number of transitions



TL4000 series

Model		TL4134E	TL4134B	TL4234B
Power	Power Source	USB bus-power (+5V)		
	Static Power Consumption	0.8W		
	Max Power Consumption	3W		
Hardware Interface		USB 3.0		
Timing Analysis (Asynchronous, Max. Sample Rate)		2GHz		
State Clock Rate (Synchronous, External Clock)		250MHz		
Storage		Conventional Timing, Transitional Timing		
Channels (Data / CLK / Analog / GND)		32 / 2 / 2 / 4		
Total Memory		4 Gb		8 Gb
Timing vs. Channels vs. Memory	Timing Analysis	Available channels (Conventional / Transitional Timing) - Memory per channel		
	2GHz	(8/7)-512Mb		(8/7) - 1Gb
	1GHz	(16/14)-256Mb		(16/14) - 512Mb
	500MHz	(32/28)-128Mb		(32/28) - 256Mb
	250MHz	(32/32)-128Mb		(32/32) - 256Mb
Channel to channel skew		< 1ns		
Threshold	Group	4 (ch0~7, ch8~15 & clk0, ch16~23, ch24~31 & clk1)		
	Range	+5V ~ -5V		
	Resolution	50mV		
	Accuracy	±100mV + 5%*Vth		
Input Voltage	Non-Destructive	±30V DC, 12Vpp AC		
	Operation	+10V ~ -10V		
	Sensitivity	0.25Vpp @50MHz, 0.5Vpp @150MHz, 0.8Vpp @250MHz		
Impedance	Data channels	200KΩ//<7pF		
	Analog channels	20KΩ//<3pF		
Analog Inputs (2) (Protocol Analyzer)	Maximum (Non-destructive)	-0.5V ~ +8V DC+AC peak		
	Operation	0V ~ 4V		
	Resolution	12 bits		
	Sampling Rate	250KHz		
Temperature	Operating / Storage	5℃~40℃ (41℉~104℉) / -10℃~65℃ (14℉~149℉)		
I/O port	Trig-In	TTL 3.3V level (Rising / Falling)		
	Trigger pulse approval	> 8 ns		
	Trig-Out	TTL 3.3V, Pulse Width		
	Ref. Clock Input	10MHz, Vpp=3.3 to 5V		
	Ref. Clock Output	10MHz, TTL 3.3V		
	Connector type	MCX jack / female		
Trigger	Resolution	500ps		
	Channels	32		
	States	16		
	Events	16		
	Pre / Post	Yes		
	Pass Counter	Yes (0~1048575 times)		
	Types	Channel, Pattern, Single / Multi Level, Width, Time-out, Setup / Hold Timing Violation, External, Manual		
	Bus I	BiSS-C, CAN2.0B/CAN FD, DP_Aux[1], HID over I2C, I2C, I2S, LIN2.2, MIPI I3C 1.1, SENT, SPI, UART (RS232), USB PD 3		
	Bus II	---	DALI, LPC, MDIO, Mini/Micro LED, MIPI RFFE 3, MIPI SPMI 2, Modbus, PMBus, Profibus, SMBus, SVI2, USB1.1	
	Bus III	---		eMMC 4.5, eSPI, MII, NAND Flash, RGMII, RMII, SD 3.0 (SDIO 2.0), Serial Flash (SPI NAND), SVID[3]
Protocol Analyzer/ Protocol Logger / Protocol Monitor	I	BiSS-C, CAN2.0B/CAN FD, DP_Aux[1], HID over I2C, I2C, I2S, LIN2.2, MIPI I3C 1.1, SPI, UART (RS232), USB PD 3		
	II	---	DALI, MDIO, MIPI RFFE 3, Modbus, PMBus, Profibus, SMBus, USB1.1	
	III	---		eSPI, MII, RGMII, RMII, SVID[3]
Software Features	Zoom In / Out	Yes		
	Language	English / Simplified Chinese / Traditional Chinese		
	Waveform Height	Adjustable		
	Zoom / Report Window	Yes		
	Quick Cursor-positioning	Yes		
	Import Label(s)	Yes		
	Quick Bus Decode Setup	Yes		
	Trigger / Auxiliary cursors	1/25		
	Data Logger	Saved to Hard Disk Drive		
	Bus Decode	1-Wire, 3-Wire, 7-Segment, A/D Mux Flash, AccMeter, ADC, APML, AVSBus, BiSS-C, BSD, BT1120, CAN 2.0B/FD, Close Caption, CODEC_SSI, DALI, DMX512, DP AUX[1], EDID, eMMC 4.5/MMC, eSPI, FlexRay, HD Audio, HDLC, HDQ, HID over I²C, HTSensor, I²C EEPROM, I²C, I²S (PCM, TDM), I80, IDE, IrDA, ITU-R BT.656 (CCIR656), JTAG, JVC IR, LCD1602, LED_Ctrl, LIN 2.2, Line Decoding, Line Encoding, Lissajous, LPC, LPT, Math, M-Bus, MDDI, MDIO, MHL CBUS, Microwire, MII, Mini/Micro LED, MIPI CSI LP, MIPI DSI LP, MIPI I3C 1.1, MIPI RFFE 3, MIPI SoundWire 1.2, MIPI SPMI 2, Modbus, NAND Flash, NEC IR, PDM, PECI 3.0, PMBus, Profibus, PS/2, PWM, QEI, QI, QSPI, RC-5, RC-6, RGB Interface, RGMII, RMII, S/PDIF, SD 3.0 (SDIO 2.0), SENT, Serial Flash, Serial IRQ, SGPIO, Smart Card, SMBus (SBS, SPD), SMI, SPI, SPI-NAND, SSI, ST7669, SVI2, SVID[2], SWD, SWIM, SWP, UART (RS232), ULPI, UNI/O, USB 1.1, USB4/TBT3 SB Channel, USB PD 3, Wiegand, ...		
	Line Decoding	Biphase Mark, Differential-Manchester, Manchester (Thomas, IEEE802.3), Miller, Modified Miller, NRZI, ...		
	Line Encoding	AMI(Standard, B8ZS, HDB3), Biphase Mark, CMI, Differential-Manchester, Manchester (Thomas, IEEE802.4), MLT-3, Miller, Modified Miller, NRZI, Pseudoternary, ...		
Dimension	L x W x H (mm³)	123 x 76 x 21 (mm³)		
Lead Cable	(Data / CLK / Analog / GND)	A 40-pin lead cable (32 / 2 / 2 / 4)		
Grippers		40		

[1] Optional DP AUX adapter needed.
[2] Upon request ONLY by users who have signed CNDA with Intel, SVID decode supported by all TL4000 models.
[3] Upon request ONLY by users who have signed CNDA with Intel, SVID trigger & PA supported by TL4234B ONLY.

Specifications marked in BLUE are different from TL3000 series.