

TL4234B

Acute TravelLogic

Logic Analyzer & Protocol Analyzer

TL4kシリーズ最上位のTL4234Bは、令和2年度の国内省庁 情報解析課 プロトコルアナライザ仕様の"UPLA-2G34-8GP3同等品"の上位品としてのおすすめの機種です。このカタログではTL4234Bで強化された機能部分を**赤色**で表示しています。

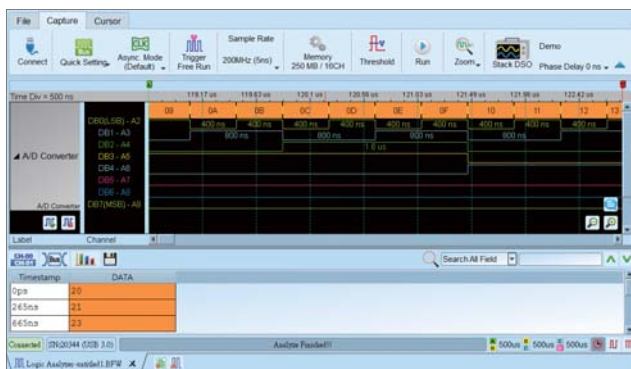


123 x 76 x 21 mm³

- PC-based
- USB 3.0 Interface
- 34 Channels (Data 32ch+Clk 2ch)
- 2 GHz Timing / **250MHz State Analysis**
- 8Gb Memory
- **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_Aux¹, 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, SVID², SWD, UART (RS232), USB1.1, USB PD 3... (100+)
- Bus Trigger I : BiSS-C, CAN2.0B/CAN FD, DP_Aux¹, 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), SVID³, ...
- Protocol Analyzer I : BiSS-C, CAN2.0B/CAN FD, DP_Aux¹, 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**, SVID³

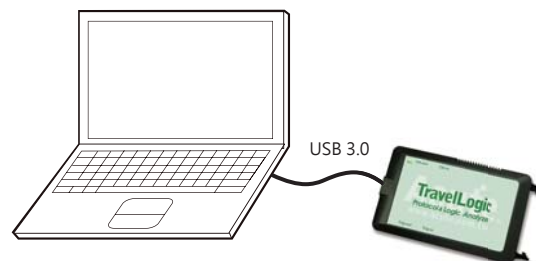
Model	Channels	Sample Rate	Memory	Bus Trigger	Protocol Analyzer
TL4134E	34	2GHz	4Gb	I	I
TL4134B	34	2GHz	4Gb	I, II	I, II
TL4234B	34	2GHz	8Gb	I, II, III	I, II, III

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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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.

Support multiple protocols with different operating modes

Real-time data search

Stack with a DSO as an MSO in logic analyzer mode

Real-time data statistics

Hide items for easy view

Protocol report

Show waveforms with bus decodes



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

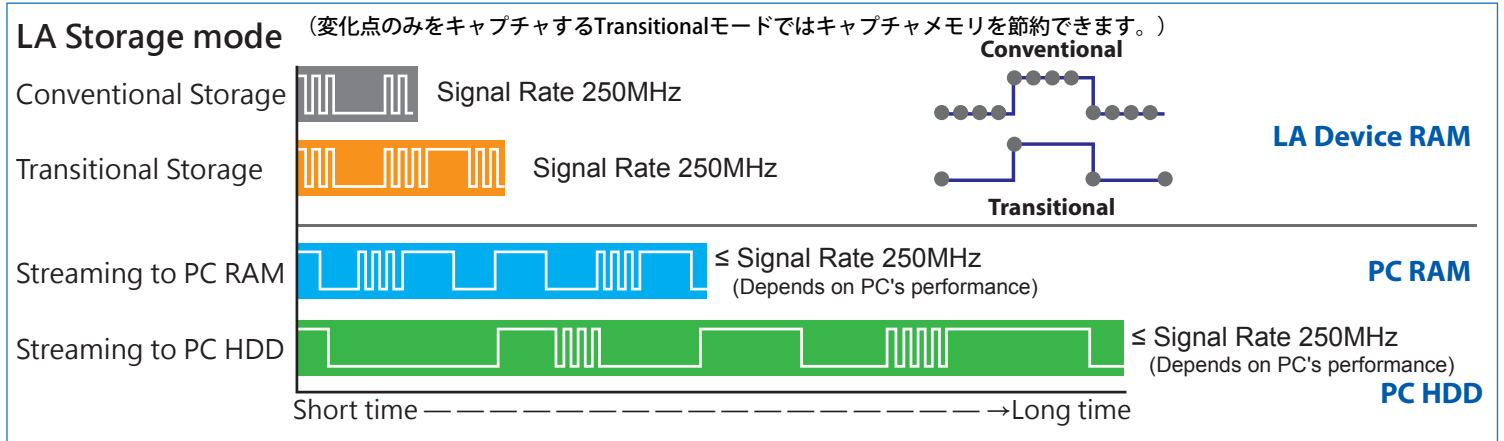


Handbag

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.



Flow chart bus triggers :

Channel: SCK 0, SDA 1

Simple Trigger: Frame Start, Repeat Start, Frame Stop, ACK, NACK

Clause Trigger: Run, State 1, State 2, State 3, Counter 1, Trigger

State 1: Event 1, Address Mode: 7-Bit Addressing, Value: 12h, R/W: ---, ACK: ---, Data: Any Position, Fix Offset, 0 Byte(s), XXh, XXh, XXh, XXh

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

Clear setting, Single or repetitive captures, Fast DSO stack setting

Quick Setting, Trigger I2C, Sample Rate 50MHz (20ns), Run, Repeat, Stack DSO Demo:(Acute DSO) Phase Delay 0 ns

Decode(SCL) Transition=10 Interval=133us Freq.(avg)=35.99KHz

Note 1 Acute Note

User mark Editable text or graphic in waveform area

Display digital and analog waveforms at the same phase

Sample	Status	Address	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	ASCII
1	Ops	Start	Rd	3F	00														.
2	547.62us	Start	Wr	12	41	43	55	54	45										ACUTE
3	2.10016ms	Start	Wr	46	54	4C	5F	33	30	30	30	53	65	72	69	65	73		IL_3000Series
4	5.64638ms	Start	Rd	3F	00														.

Report window

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°C~40°C (41°F~104°F) / -10°C~65°C (14°F~149°F)			
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			
	Resolution	500ps			
Trigger	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, PECE 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 (mm ³)	123 x 76 x 21 (mm ³)		
	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.