

# Acute TravelBus Logic Analyzer & Protocol Analyzer

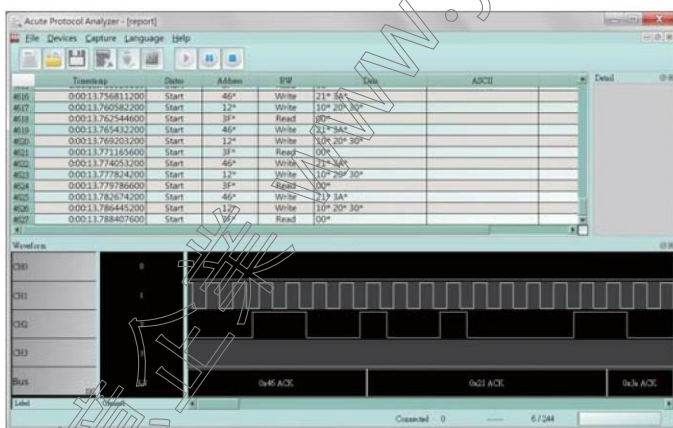
- PC-based, USB 3.0 interface/powered
- 200 MHz timing/state analysis
- Digital channels : 16 (Data), 1 (Clock), 2 (I<sup>2</sup>C)
- Memory : PC RAM
- Real time data display and post-capture waveform display
- Bus Decode : I<sup>2</sup>C, I<sup>2</sup>S, LIN2.2, SMBus, PWM, SMBus, SPI, UART, USB PD 3.0, ... (60+ decodes)
- Module I  
Protocol Analyzer : HID over I<sup>2</sup>C, I<sup>2</sup>C, I<sup>2</sup>S, LIN 2.2, MDIO, PMBus, RS232, SMBus, SPI, USB1.1
- Module II
  - Protocol Analyzer : CAN 2.0, DALI 2.0, Modbus, Profibus, RS422, RS485
  - Differential channels : 2 (CAN2.0), 4 (RS422/485)
  - Stackable with Acute TravelScope DSO to form an MSO
  - Isolated : CAN/RS485 ( >1000Vrms)
- Module III  
Protocol Analyzer : BiSS-C, PWM, USB PD 3.0



96 x 74 x 24 mm<sup>3</sup>

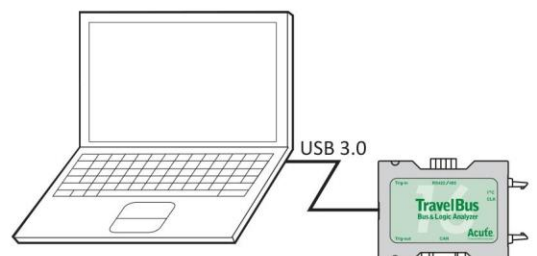
Model	Channels	Module	Bus Decode	DSO stack
TB1016F	19	I <sup>2</sup> C, RS232, SPI	YES	No
TB1016E	19	I	YES	No
TB1016B	25	I, II	YES	Yes
TB1016B+	25	I, II, III	YES	Yes

## Software Window



## System Requirements

- USB 3.0 port
- XP, Vista, Win 7, Win 8 (32 / 64 bits)



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# TravelBus series

Model	TB1016F	TB1016E	TB1016B	TB1016B+
Power Source	USB bus-power (+5V)			
Power	Static Power Dissipation	0.75W		
	Max Power Dissipation	< 2.5W		
Hardware Interface	USB 3.0			
Timing Analysis (Asynchronous, Max. Sample Rate)	200 MHz <sup>1</sup>			
State Clock Rate (Synchronous, External Clock)	200 MHz <sup>1</sup>			
Channels (Data / CLK / I <sup>2</sup> C / CAN / RS485)	16 / 1 / 2 / - / -		16 / 1 / 2 / 2 / 4	
Trigger	Resolution	5 ns		
	Channels	16 (Max.)		
	Conditions	Yes (4)		
	Pre/Post Trigger Setting	Yes		
	Pass Counter	Yes (0 ~ 65536 times)		
	Event Types	Channel, Pattern, Single, Width, Time-out, External		
	Module	I <sup>2</sup> C, RS232, SPI	---	
	Module I	---	HID over I <sup>2</sup> C, I <sup>2</sup> C, I <sup>2</sup> S, LIN2.2, MDIO, PMbus, RS232, SMBus, SPI, USB1.1	
	Module II	---	CAN2.0, DALI, Modbus, Profibus, RS422, RS485	
	Module III	---	USB PD 3.0	
Input port (for Stack)	---	TTL 3.3V		
Output port (for Stack)	---	TTL 3.3V		
Threshold	Range	-6V ~ +6V		
	Resolution	50mV		
	Accuracy	±100mV + 5%*Vth		
Input Voltage	Maximum	±40V DC, 15Vpp AC		
	Sensitivity	0.5Vpp @150MHz		
Impedance	200KΩ // <5pF			
Temperature	Operating Temperature	5° C ~ 45° C (41° F ~ 113° F)		
	Storage Temperature	-10° C ~ 65° C (-14° F ~ 149° F)		
Protocol Analyzer	Protocol Analyzer	I <sup>2</sup> C, RS232, SPI	---	
	Module I	---	HID over I <sup>2</sup> C, I <sup>2</sup> C, I <sup>2</sup> S, LIN2.2, MDIO, PMbus, RS232, SMBus, SPI, USB1.1	
	Module II	---	CAN2.0, DALI2.0, Modbus, Profibus, RS422, RS485	
	Module III	---	BiSS-C, PWM, USB PD 3.0	
Software features	Bus decode	1-Wire, 3-Wire, 7-Segment, AccMeter, ADC, APM1, BiSS-C, BSD, CAN2.0, CAN-FD, Close Caption, CODEC_SSI, DALI 2.0, DMX512, DP Aux, EDID, Line Decoding, Line Encoding, HDLC, HDQ, HID over I <sup>2</sup> C, I <sup>2</sup> C, I <sup>2</sup> C EEPROM, I <sup>2</sup> S, ITU-R BT.656 (CCIR656), IrDA, JTAG, LCD1602, LED_Ctrl, LIN2.2, LPT, M-Bus, Math, MDIO, MHL Cbus, Microwire, Modbus, NEC IR, PECL, PMBus, Profibus, PS/2, PWM, QEI, QI, RC-5, RC-6, SGPIO, Smart Card, SMBus, SMI, SPI, SSI, ST7669, SWD, SWIM, SWP, UART, UNI/O, USB1.1, USB PD3.0, Wiegand		
Dimension	L x W x H (mm <sup>3</sup> )	96x74x24		
Lead Cable	24-pin			
Grippers	5	10	20	


<sup>1</sup> Measure signal under 14 MHz ONLY due to data transmission limitation. <sup>2</sup> Choose DP AUX extender card.

## Packing list


Item	Quantity
1. TB1016 device	1
2. Terminal Block (F/E/B)	0/0/1
3. D-Sub Connector (F/E/B)	0/0/1
4. Lead Cable (24-pin)	1
5. USB 3.0 Cable	1
6. Grippers (F/E/B)	5/10/20




TB1016F/E




Terminal Block




D-Sub Connector




Lead Cable



USB 3.0 Cable



Grippers



TB1016B / B+

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

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