

# Acute TravelBus

## 2 in 1 Analyzer (Protocol & Logic)

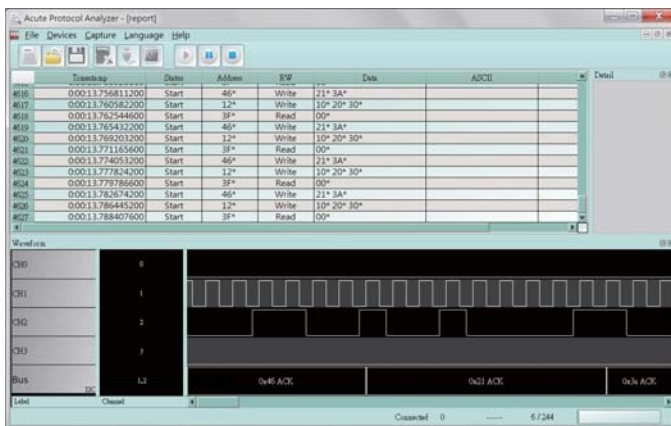
- PC-based, USB 3.0 interface/powered
- 200 MHz timing/state analysis
- Digital channels : 16 (Data), 1 (Clock), 2 (I<sup>2</sup>C)
- Memory : PC RAM
- Data logger
- Real time data display and post-capture waveform display
- Module I
  - Bus analysis : DALI, HID over I<sup>2</sup>C, I<sup>2</sup>C, I<sup>2</sup>S, LIN2.2, MDIO, PMBus, RS232, SMBus, SPI, USB1.1
- Module II
  - Bus analysis : CAN2.0, 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
  - Bus analysis : BiSS-C, PWM
- Bus Decode : I<sup>2</sup>C, I<sup>2</sup>S, LIN2.2, SMBus, PWM, SMBus, SPI, UART, USB PD 2.0, ... (60+ decodes)



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

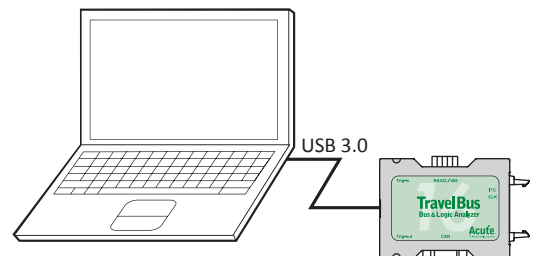
Model	Channels	Module	Bus Decode	DSO stack
TB1016F	19	I <sup>2</sup> C, RS232, SPI	YES	No
TB1016E	19	I	YES	No
TB1016B	25	I, II	YES	Yes
TB1016B+	25	I, II, III	YES	Yes

### Software Window



### System Requirements

- USB 3.0 (USB 2.0) port
- XP, Vista, Win 7, Win 8 (32 / 64 bits)



# Acute®

PC-based T&M Instruments

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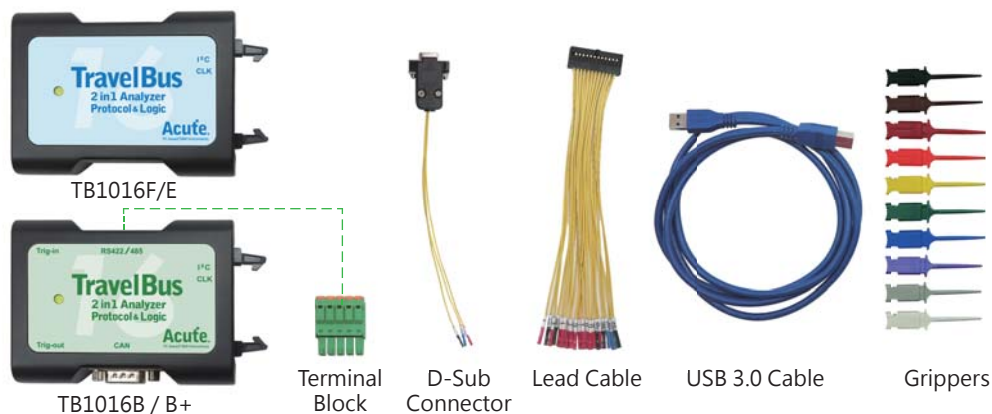
## TravelBus series

Model		TB1016F	TB1016E	TB1016B	TB1016B+
Power	Power Source	USB bus-power (+5V)			
	Static Power Dissipation	0.75W			
	Max Power Dissipation	< 2.5W			
Hardware Interface		USB 3.0 (USB 2.0 Compatible)			
Timing Analysis (Asynchronous, Max. Sample Rate)		200 MHz			
State Clock Rate (Synchronous, External Clock)		200 MHz			
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	Pattern, Channel, Transition, Glitch, Width			
	Module	I <sup>2</sup> C, RS232, SPI	---		
	Module I	---	DALI, 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, Modbus, Profibus, RS422, RS485		
	Module III	---	---		BiSS-C, PWM
	Input port (for Stack)	---	---		TTL 3.3V
	Output port (for Stack)	---	---		TTL 3.3V
	Range	-6V ~ +6V			
Resolution	50mV				
Threshold 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	---	DALI, 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, Modbus, Profibus, RS422, RS485		
	Module III	---	---		BiSS-C, PWM
Software features	Bus decode	1-Wire, 3-Wire, 7-Segment, AccMeter, ADC, APML, BiSS-C, BSD, CAN2.0, CEC, Close Caption, DALI, 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, ITU656, IrDA, JTAG, LCD1602, LIN2.2, LPT, M-Bus, Math, MDIO, MHL Cbus, Microwire, Modbus, NEC IR, PECL, PMBus, Profibus, PS/2, PWM, QI, RC-5, RC-6, SGPIO, Smart Card, SMBus, SMI, SPI, SSI, ST7669, SWD, SWP, UART, UNI/O, USB 1.1, USB PD 2.0, Wiegand			
Dimension	L x W x H (mm <sup>3</sup> )	96x74x24			
Lead Cable		24-pin			
Grippers		5	10	20	

## 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

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



# Acute

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