

# LGLite

Real Time. Real Learning

## USB - 32 Channel Logic Analyzer & Pattern Generator

- **Pattern Generator**
  - √ 50Mhz Real Time
  - √ 32 Buffered Channels
  - √ Single Step Mode
  - √ Loop Mode
  - √ Digital Waveform Editor
- **Logic Analyzer**
  - √ 50Mhz Real Time
  - √ Timing Analyzer
  - √ State Analyzer
  - √ Signature Analyzer
  - √ Multiple Trace/Ref Window
  - √ Programmable Delay
  - √ 16 Trigger Words
  - √ 3 External Clock's
  - √ Optional Transition Mode
  - √ Optional Frequency Counter
- **Stimulus & Response -50Mhz**
  - √ Mixed LA / PG mode
  - √ FPGA,  $\mu$ C & Bus analysis
  - √ Windows XP/NT/98



- **Universal VLSI / $\mu$ C Trainer**
  - √ Multi-Vendor FPGA/CPLD/ $\mu$ C
  - √ PLCC, PQFP, TQFP devices
  - √ Up to 240 pin devices
  - √ All I/O with VCC/GND links.
  - √ Support's 1.3V to 5V devices
  - √ Vendor Specific Gate density
  - √ JTAG Programming cable
  - √ Parallel/Serial/USB/SPI/CAN
  - √ Traffic Light/Stepper interface
  - √ On board Clock 100K-10Mhz
  - √ 16x2 LCD Display
  - √ 4 Digit 7-SEG Display
  - √ 4x4 Matrix Keypad
  - √ I2C EEPROM, RTC & Relay
  - √ Serial ADC / DAC with Pot.
- **Daughter Boards (Optional)**
  - √ CPLD Daughter Board
  - √ FPGA Daughter Board
  - √ 89C51 Daughter Board
  - √ ARM7 Daughter Board
  - √ CoreMP7 Daughter Board
  - √ PIC16F877 Daughter Board
  - √ PicoBlaze SoftCore Board
  - √ PIC SoftCore Board
  - √ Compiler & Debugger

### Key challenges

The constant changes in Digital technology make it challenging for an university to quickly adapt course structures and curriculums to keep up with industry trends.

### Meeting the challenges

ADM's LGLite, in combination with ADM's reconfigurable development board – the TKBase – allows you to meet the future head on. Armed with a premium hands-on educational tool's for digital,  $\mu$ C & FPGA based technology, we are offering a truly outstanding training platform that will prepare your engineers not only to meet the challenges of tomorrow ... but to thrive on them.

### Protecting your investments

ADM's development team is constantly refining and adding additional tools / new device daughter boards so as to protect your Digital Technology investments.

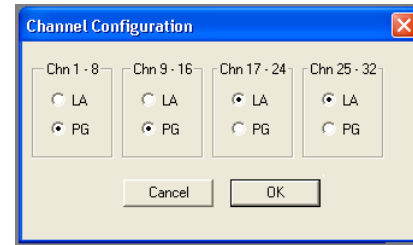


# LGLite — Real Time Waveform Generation & Capture

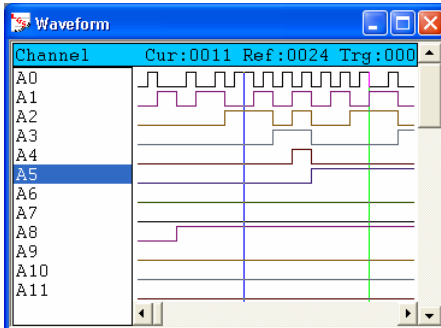
## When to use a Logic Analyzer / Pattern Generator?

- When you need to see many signals at once.
- When you need to look at signals the same way your hardware does.
- When you need to generate a changing pattern of highs and lows.

LGLite is really a multi-configurable instrument in one. The first part is a 50Mhz timing analyzer, the second part is a 50Mhz state analyzer and the third part is a 50Mhz Pattern Generator . LGLite's real time Pattern Generator & Analyzer's make up a powerful tool for the digital designer.



## When is a Timing Analyzer used?



A timing analyzer is the part of a LGLite that is analogous to an oscilloscope.

The timing analyzer displays information in the same general form as a scope, with the horizontal axis representing time and the vertical axis as voltage amplitude. Because the waveforms are time-dependent, the display is said to be in the time domain.

LGLite timing analyzer is the right choice if you need to verify timing relationships among several signals by seeing them all together. LGLite timing analyzer has an internal clock up to 50Mhz to control sampling, so it asynchronously samples the system under test.

## What does a State Analyzer capture?

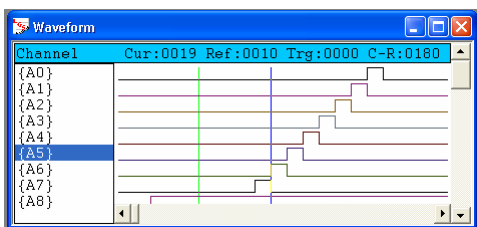
LGLite state analyzer is a very valuable tool, especially when tracking down bugs in software and hardware.

A "state" for a logic circuit is a sample of a bus or line when its data is valid. Again, a state change occurs each time there is a positive transition on the clock line. A state analyzer displays data in a listing format in hex or binary.

LGLite state analyzer synchronously samples the system using its 3 external clock inputs. A world of embedded processor / FPGA may have many such state clocks.

StateNo	Addr	Da	Status	Cur:0000
Trigger	0000	02	01101101	
000001	0001	01	01101100	
000002	0002	00	01101100	
000003	0002	00	01101100	
000004	0100	75	01101101	
000005	0101	81	01101100	
000006	0102	50	01101100	
000007	0102	50	01101100	
000008	0103	75	01101101	
000009	0104	A8	01101100	
000010	0105	00	01101100	
000011	0105	00	01101100	

## Where is a Pattern Generator used?



Functional validation in VHDL is to test FPGA's ability to perform its logical operation correctly.

An applied test data called **Pattern** is sent to the FPGA input pins and a functional test sends a series of patterns and compares the devices real time response against predicted data. This functional test is a Boolean truth table of FPGA's Logic states.

LGLite Pattern generator performs this task of producing endless pattern's at speeds up to 50Mhz matching the needs of complex FPGA based design.



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