

# Feature Comparison of **tiq** and Common Logic and Embedded Debug Tools

Innavatus, April 17 2014

Key:

I'll reach for it all the time!	I'll use it often	I probably won't use it?
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	tiq Maker Probe	DMM	Logic Probe	Analog scope	Digital scope	Digital scope w/Measure	Logic Analyzer
	<\$100	<\$100	<\$50	<=\$500	<=\$500	>>\$500	\$100 - \$10k
<b>Compact with display(s) close to tip</b>	Yes	No	Yes	No	No	No	No
<b>Ease of hookup and time to first reading</b> (all require ground connection first)	Great - touch node of interest	Great - touch node of interest	Great - touch node of interest	Good - might need to adjust timebase, vertical or trigger	Good - might need to adjust timebase, vertical or trigger	Good - might need to adjust timebase, vertical or trigger	Poor - need to hook up several lines, set triggers, arm/disarm
<b>Low duty cycle signals</b> (for example, <1% duty cycle)	Great - Auto display of pulse timing 100nS-250mS	Poor - some have frequency counter, often low bandwidth	Poor - LED flashes only	Poor - Hard to view and trigger, need high persistence	Very good - may be tricky to view and trigger	Very good - may be tricky to view, "Measure" doesn't work if off screen	Very good - large capture memory, but usually have to scroll or zoom
<b>Repetitive pulse timing analysis</b>	Great - Single touch - auto display of pulse timing - no adjustments	Poor - some have frequency counter, often low bandwidth	Poor - LED flashes only	Very good - but often need to adjust timebase and/or trigger	Very good - but often need to adjust timebase and/or trigger	Very good - but often need to adjust timebase and/or trigger	Very Good - large capture memory, but usually have to scroll or zoom
<b>Single pulse capture &amp; analysis</b>	Great - capture and analysis of single pulse >=30nS	Poor - N/A	Good - some probes latch on pulses >=10nS	Poor - might catch with high persistence	Good - capture memory and run/stop modes	Very good - large capture memory and run/stop modes	Great - large capture memory
<b>Data lines</b> (for example, serial data, I2C, SPI, buses)	Shows logic activity only - lots of changing numbers	Poor - N/A	Shows logic activity only - flashing LED	Shows logic activity as pulses come and go	Shows logic activity as pulses come and go	Shows logic activity and may have data decode capability	Great - this is what logic analyzers are for!
<b>Non-logic voltages</b> (for example, power supplies, motor drivers, sensors)	Very good - Auto ranging voltmeter +28Vdc to 13Vdc	Great - very wide range, can be auto ranging	Poor - Illegal!	Good - but often need to adjust vertical scale and low readable accuracy	Good - but often need to adjust vertical scale and low readable accuracy	Very good with "Measure" - but often need to adjust vertical scale	Poor - Illegal!
<b>Marginal logic levels</b> (for example, outputs driving heavy loads)	Very good - logic level interpretation PLUS voltage measurement	Good - but does not interpret logic level	Poor - no indication	Good - but low readable accuracy and logic level not interpreted	Good - but low readable accuracy and logic level not interpreted	Good - but logic level not interpreted	Poor - no indication
<b>Non-driven lines</b> (for example, debugging broken traces, tri-state lines)	Very good - weakly biased to ~0.670V to identify floating lines	Poor - high impedance	Poor - high impedance	Poor - high impedance	Poor - high impedance	Poor - high impedance	Poor - high impedance or biased to low/high
<b>Mixed logic levels (3.3V, 5V)</b>	Very good - displays mixed logic levels and voltages on LCD and LED	Good - but does not interpret logic level	Poor/Good - some have hard switch to change thresholds	Good - but low readable accuracy and logic level not interpreted	Good - but low readable accuracy and logic level not interpreted	Good - but logic level not interpreted	Good - but logic mixed level not shown
<b>Pulse Generator</b>	Great - programmable high/low time, continuous or "n" pulses on button push	Poor - N/A	Poor - some have non-programmable pulsing	Poor - N/A	Poor - N/A	Very good - with expensive signal generator options	Very good - some logic analyzers have built in generators