



**ComScire**<sup>®</sup>  
Quantum Number Generators

## Data Sheet – ComScire<sup>®</sup> QNG Model PQ32MU

Designed to meet NIST SP  
800-90 Recommendations

NIST DRAFT Special Publication 800-90B, Recommendation for the Entropy sources Used for Random Bit Generation, describes the latest recommendations for entropy source requirements, construction, reliability, testing and security for non-deterministic random bit generators. ComScire Model PQ32MU is designed to be fully compliant with these recommendations. Full entropy random output is provided with no data conditioning required.

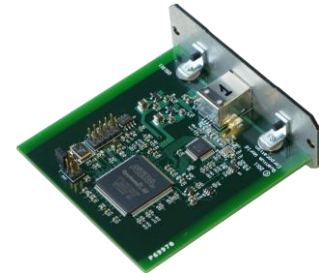
**GUARANTEED to Pass ANY  
Test for Randomness!**

ComScire *Pure Quantum*<sup>™</sup> random generators are guaranteed to pass any properly designed test for randomness. All Model PQ32MU generators are tested to at least 1 Terabits at the time of manufacture as part of our QA program. Our testing procedures are more stringent than any other manufacturers'.

### Continuous Runtime Testing

PQ32MU includes continuous internal hardware testing of the raw random bits to ensure completely unpredictable true random numbers are being supplied to your application. The output is automatically disabled and an error message sent if the estimated entropy of triple-redundant raw generator outputs or the final generator output fall below threshold settings.

For more information on any of our products or services please visit us on the Web at:  
[www.comscire.com](http://www.comscire.com)



### Features

- Continuous hardware runtime testing with automatic halt
- Raw data streams and internal statistics available
- Independent power regulation for generator circuitry
- ActiveX connectivity
- Includes Drivers, interface and testing software
- Client software forward compatible from J1000KU and R2000KU

### Specifications

- 32 Megabit per second  $\pm 0.005\%$
- 1/0 bias and autocorrelation < 1 part per trillion
- Estimated quantum entropy: 0.99+ bits per output bit
- Estimated total entropy:  $(1 - \epsilon)$  bits per bit,  $\epsilon < 10^{-100}$
- Shielded 1/16 inch aluminum enclosure
- USB 2.0 High-Speed interface
- Bus powered: 200mA max from USB connection. High current USB port or powered hub recommended.
- Non-condensing humidity
- Operating temperature: 0-50 Deg. C
- Dimensions (L x W x H): 155 x 80 x 25 mm

### Applications

- For applications requiring the highest generation rate of unpredictable numbers
- Gaming
- Lotteries
- Random Drawings
- Cryptography
- Data Security
- Research

### System Requirements

- 32/64-bit Windows Vista/2008/7/2012/8/10
- Linux
- USB 2.0 High-Speed host/hub

Notes:

- Minimum OS required is Windows Vista or Linux 2.6

### White Paper

- [Entropy Analysis and System Design for Quantum Random Number Generators in CMOS Integrated Circuits](#)



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