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## **Quartzdyne Newsletter**

April 2007

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- **Initiatives Underway to Increase Capacity, Reduce Deliveries**
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### **2007 Reliability Statistics from Field Returns**

We track our field reliability by recording failure modes and elapsed time for each returned transducer. Every year, we analyze the database for trends, and share the results openly on our webpage. This report describes the general design of a Quartzdyne pressure transducer, and provides the reliability statistics and common failure modes for each of the major components.

Publicizing failures is an important part of our continuous improvement. We hope that our customers appreciate our candor and honesty, as well as our ongoing efforts to improve the reliability of our products. You'll find this year's report at <http://www.quartzdyne.com/pdfs/reliability.pdf>

### **New ASIC Improves Crystal Startup and Hybrid Reliability**

We're pleased with the progress on the application-specific integrated circuit (ASIC.) Measuring less than 0.1" [2.5mm] on each side, the ASIC brings several benefits to the hybrid circuit:

- Rapid, more reliable crystal startup
- 50% fewer components inside the hybrid
- Lower jitter; improved resolution
- -40 to 225°C operating temperature range

Based on the 2007 reliability report (see above), our greatest opportunity for improvement is reducing QT/QR crystal failures. The ASIC will play a key role in improving QT/QR crystal reliability since it includes automatic gain-control that "kick-starts" the crystals. We expect that ASIC hybrid transducers will begin shipping in 3Q 2007 in both frequency- and digital-output models.

NOTE: The ASIC operates on low voltage, and it will only be available in 3-5 VDC hybrids. We will identify this by changing frequency-output transducer part numbers: SPB002 --> SPB102, QHB008 --> QHB108, etc. (A '1' will occupy the first numeric digit.) Please review your tool designs and legacy issues now so you can take advantage of the ASIC as soon as it becomes available. We will run 5-12V (non ASIC) and 3-5V (ASIC) frequency hybrids concurrently for a year, but the 3-5V ASIC hybrid will become the standard due to its advantages.

### **Initiatives to Increase Capacity, Reduce Deliveries**

Please note that our leadtimes have increased to 17 weeks! In January our leadtimes were down to six weeks after we had increased capacity by 50% throughout 2006, but tremendous orders started arriving in mid-January. We are currently adding equipment, people, and floorspace as quickly as possible to adapt to the new level of business.

Part of our expansion includes an implementation of the TPS (Toyota Production System, or "Lean manufacturing") at Quartzdyne. We're doing this for three purposes: reduce leadtimes, improve consistency/quality, and increase our throughput. Initial indicators are positive, and we're committed to make it happen. (Other Dover companies in the oilpatch have achieved terrific capacity increases and leadtime reductions through "lean" implementation.)

It's certainly a "good problem" to have, but we regret that there are physical limits to the rate at which we can increase capacity. We ask for your understanding and patience as we do so.

### **Discontinuation of 3½" Floppy Disks**

Quartzdyne will discontinue shipping a 3½" floppy disk with each transducer at the end of 2007. In 2008 coefficients will be served over the web only. We believe that web-based coefficients will improve productivity since all field locations have 24/7 access. Our coefficient service is available at <http://www.quartzdyne.com/customer/coeff/coeff.htm>

Floppy disks have clearly outlived their usefulness; it's becoming increasingly difficult to purchase a computer with a floppy drive. We considered replacing the floppies with CDs or USB flash drives, but any physical media is subject to being lost or misplaced. If you have a suggestion regarding how we can make the transition from floppy to web-based coefficients easier for you, please let us know.

### **Quartzdyne Electronics (QE) is Ready to Build Your Hybrid**

Give QE a circuit design and we can build it. "Hybridize" your downhole circuits with QE and gain 100X longer life, higher temperature operation, reduced circuit size, and rugged packaging for severe downhole environments. To demonstrate the long life at high temperature provided by our hybrid electronics, we've deliberately destroyed over 1000 circuits in our [lifecycle tests](#) since 1998. Although the up-front costs of die acquisition and layout are higher, the revenue generated from increased tool up-time can easily compensate for the initial investment.

Quartzdyne launched QE last year in response to customers' needs to upgrade from surface-mount and through-hole circuits to hybrid technology. By leveraging our hard-earned experience and know-how on hybrid circuits, QE will manufacture your hybrid to the high standard you've come to expect from Quartzdyne transducer hybrids. Our [techniques and specialized materials](#) ensure resilient component attachment and exceptional wirebonds. QE will screen and qualify your custom hybrid circuit prior to shipment, just as we do for hybrids used in our transducers.

If you're ready to hybridize a circuit, or improve the reliability of an existing hybrid design, contact QE today at [QEsales@quartzdyne.com](mailto:QEsales@quartzdyne.com). QE's website is at [www.quartzdyne.com/electronics](http://www.quartzdyne.com/electronics).

### **Visit Quartzdyne and QE at OTC**

We invite you to visit Quartzdyne and QE in booth 5543 during the Offshore Technology Conference in Houston between April 30 and May 3. Please contact us at [sales@quartzdyne.com](mailto:sales@quartzdyne.com) if you would like a complimentary daypass. We look forward to seeing you there!

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