

## Newsletter

Issue number 1 - 2013

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**MicroComp Nordic AB** is a privately owned company that was started in 2004 and has its head office in Stockholm.

MicroComp Nordic works with Microwave and Fiber Optic as consultancies, and as representative for different suppliers as well as with product development, also on customer request.

### Newsletter information!

This newsletter is presented by MicroComp Nordic AB. If you don't want to receive those newsletters in the future, please let us know: [info@microcomp-nordic.se](mailto:info@microcomp-nordic.se) or: +46 (0) 8 607 39 10.

## MicroComp Nordic ISO Certified

**µComp Nordic AB** MicroComp Nordic, has received the International Organization for Standardization ISO 9001:2008 certification (no. 5563) for its quality management system. MicroComp Nordic has quite a long history of providing high quality products and services to the challenging world of microwave and fibre optics and the ISO certification demonstrates the company's quality commitment to its expanding customer base.

CTO, Jan Åberg, commented, "Our strategic partners rely on us for high performance and high quality products and ISO 9001:2008 certification demonstrates our commitment to continually improving our engineering, manufacturing, and business processes within all levels of our organization." Jan continues, "These ISO processes represent a set of principles that ensure a good approach to managing business activities that builds upon our experience of selling and manufacturing products and prototypes. We really do believe that us being certified will bring an additional value to our business which will be beneficial for our customers, suppliers as well as ourselves"



Figure 1: MCN ISO Certified

## Frequency Generation Products



Miteq Inc, has a long heritage of making versatile and high quality frequency generation products and offers a wide selection of high performance frequency sources. This includes fixed-

frequency, frequency-agile with phase-locked sources and frequency synthesizers from 5 MHz to 40 GHz. Miteq's frequency source products are used throughout the world, on numerous space projects as well as in commercial and military applications.

**Frequency synthesizers** manufactured by Miteq extend up to 40 GHz and have bandwidths that can cover multi-octaves. Miteq synthesizers are a rugged modular design and can be customized for any type of interface and use either a single or multi-loop design. Single-loop configurations are used for applications where reference phase noise is good and fine resolution is not required. Multi-loop designs are in systems where extremely low phase noise and fine frequency resolution are necessary for system operation. Phase noise and frequency resolution are just some of the considerations for choosing a synthesizer design, others include frequency bandwidth, spurious, switching speed, output power, and type of interface.

Miteq's broad range of synthesizers, utilize all latest available technologies from internal and external sources. A typical synthesizer block will include high speed DDS, Delta Sigma Dividers, frequency multipliers, high quality mixers, lowest noise DC regulators and filters. State of the art (Field



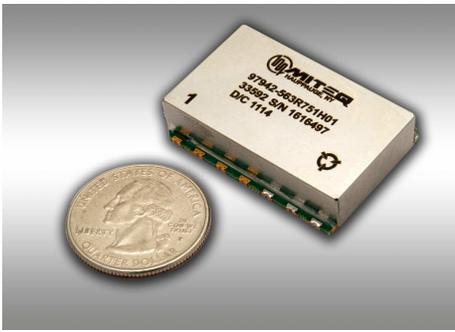
Figure 2: Miteq Synthesizer

Programmable Gate Arrays) FPGAs are used for controller functions and can be customized to meet any interface and control protocol or speed.

Synthesizer features:

- Frequency coverage from VHF up to Ka-band
- Single and multi-loop designs for frequency agility and low phase noise
- Ultra low phase noise during vibration
- Phase locked loop designs with step sizes from 1 kHz
- Narrow band and multi-octave designs
- Multiple user interfaces available <sup>a</sup>
- Modular and instrument style packaging

**Miteq phase-locked oscillator** products are rugged modular components that can be used in a wide variety of applications, from laboratory test stations to space flight. The phase-locked oscillators have found their way into every type of high quality telecommunications, lab testing, medical imaging, radar and many other applications that require the high quality and performance



*Figure 3: Miteq Phase-locked oscillator*

that Miteq design into its products.

The phase-locked oscillator design begins by defining the performance parameters required. The most significant of these requirements is usually associated with the frequency band and frequency resolution. Next would be performance requirements such as phase noise, spurious, harmonics, reference, operating voltage and power consumption. These are all factors that must be considered before choosing a phase-locked oscillator design.

Single loop analog designs are preferred due to the very low noise floor the analog phase detector can provide. Generally this noise can be below -160 dBc. In most cases this will do very little to degrade a good reference frequency. The output noise will be degraded only by the frequency multiple of the reference to the output.

Miteq offers multiple solutions for high quality signal source requirements. The entire product line can be customized to meet any environmental and dynamic operating conditions.

Oscillator features:

- Frequency coverage from 10 MHz to 40 GHz
- Crystal, dielectric and coaxial resonator types
- Temperature compensated
- Phase locked or free running
- Modular and surface mount packages

## New Diamond Outdoor Connector



Diamond is glad to announce that the development of the new OD3 outdoor connector has been completed and that it was officially introduced in spring 2013. The new Diamond OD3 connector system provides an efficient, comprehensive and affordable solution for fiber optic connectivity in harsh and environmentally challenged applications. OD3 offers high reliability, long-distance transmissions and high voice, data and video rates. The rugged design and the IP67-rated and shock resistant anodised metal housing makes it suitable for applications in sectors such as industrial, oil and gas, field communications, transportation and military. The OD3 connector leverages all the mechanical, optical

performance and safety features you come to expect from the F-3000™ connector. The OD3 bulkhead, which includes an F-3000™ mating adapter, combines the advantage of metal protection shutters and a small mechanical footprint occupying less panel space and therefore allowing higher density. The OD3 connector is terminated with OCC® Homologated MM and SM cables. It is available with Diamond's Active Core Alignment in both PC and APC finishes, providing low insertion and high return loss values (customer cable assemblies available upon request).



Figure 4: New Diamond OD3 outdoor connector

## Noisewave, Noise Sources



Based in New Jersey, USA, NoiseWave is a complete supplier of specialty noise components, up to 60 GHz. NoiseWave have the capability to supply a number of different sources for different purposes, covering a wide range of frequency bands with different ENR (Excess Noise Ratio).

NoiseWave's sources are typically used to measure Noise Figure, provide a source of AWGN to generate CNR or EbNo to measure error rates, and are used as an economical source of broad band power for built in test applications such as signal strength calibrators and radar applications. They can be used to increase the dynamic range of Analog to Digital converters by dithering and reducing correlated noise. They are often also found in Disk drive testing, wireless testing, CATV both analog and DOCSYS, jamming, SATCOM for BER and NF, as well employed as a source of jitter.

Noise sources can be a simple noise diode which generates a low level of noise, to amplified noise sources supplied in multiple form factors to instrumentation grade noise generators which amplify, attenuate and process both the noise and a user added signal. Noise diodes come in a variety of packages and can be surface mount or DIP for PCB mount or coaxial for system integration.

NoiseWave also helps with calibration of noise sources. They are capable of calibrating and repairing a variety of noise based products from all manufacturers. NoiseWave's technicians and engineers have many decades of experience in all facets of noise design, testing, repair and calibration.



Figure 5: The NW-D series

## Filter with integrated limiter

### µComp Nordic AB

One of the specialties of MicroComp Nordic is to build and design systems on customer requests, but also on its own initiative and quite some systems have been built within the company over the years.

One of the most recent projects carried out within MicroComp Nordic was to design and build a narrow band filter with a wide band limiter in front, see figure 6. The unit is to be used in a receiver and should limit and block unwanted signals that can saturate or damage the receiver.



*Figure 6: MicroComp Nordic produced filter with limiter*

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