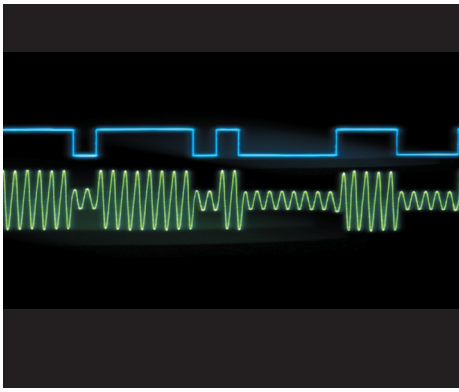
Symmetricom

Rubidium 8040C



WHITE PAPER

Unmatched Flexibility —

With The Industry's Lowest Cost-Per-Output

With worldwide military operations requiring increasing levels of security, frequency standard devices have come to play a key role in secure communications. As military personnel communicate encrypted messages, making sure no one on the other side can listen in is paramount.

To ensure security, many military devices utilize the practice of frequency hopping, whereby both the sending and receiving devices hop from one frequency band to another in a pre-determined pattern. If intruders happen to identify a frequency band in-use, they'll only have access for a brief time.

A vital key to such a system is maintaining the defined frequency for each device as it hops. If required to maintain frequency based on its own internal oscillator, most devices tend to drift over time.

Symmetricom has helped communication-device manufacturers meet this challenge for several years as the market-leader in rubidium frequency standard devices. The company recently unveiled an improved version, the 8040C, which began shipping in December. This new model offers higher levels of accuracy, redundancy and flexibility for manufacturers and laboratory testing-companies that need precise frequency verification.

The 8040C rubidium frequency standard device features Global Positioning System (GPS) disciplining supported by traditional rubidium performance for improved accuracy. End-users also benefit from an additional five outputs that now come standard.

The additional outputs give the 8040C a total of six ports configurable to any combination of 1, 5 or 10MHZ as well as 1PPS. Even more impressively, Symmetricom has managed to lower the overall cost of the 8040C compared to the 8040B model. For firms that need even more output, the device provides for an option of adding six more ports for a total of 12.

Figure: Rubidium 8040C

Because the 8040C can generate frequency outputs via GPS, it is one of the most accurate frequency devices available. But even in cases where the device can't access GPS due to weather, vegetation or other environmental conditions, the 8040C provides a reliable backup. In these cases, the system fails over to its internal rubidium clock for as long as necessary to provide the proper frequency until the GPS can be accessed again.

Besides its military applications, the 8040C also provides frequency accuracy to television and radio broadcasters that need to ensure their broadcast frequency remains within their allotted range. Drifting outside of this range interferes with transmissions from other broadcasters and can result in significant fines from the FCC. The 8040C helps broadcasters avoid penalties by eliminating out-of-band emissions that cause co-channel interference.

Aerospace and defense contractors can apply the 8040C to their flight line test equipment, Satcom terminal references, test range references, timing systems and communications systems. These applications require short-term frequency-stability and low aging-rates to prevent buffer over/under flows in satellite modems; to provide accurate time difference-of-arrival measurements in test range applications; and to provide synchronized data flow in communications systems. The 8040C supports all these types of

equipment, which require a more reliable frequency reference than just a GPS-based system. These types of equipment also require better frequency-stability and accuracy than their own internal, local oscillator can provide.

Calibration laboratories as well as electronics manufacturers can use the 8040C for lab frequency references, calibration, and frequency-measurement equipment references. For many applications, a rubidium frequency standard provides a useful compromise between cost and performance for frequency reference and calibration applications. For example, the 8040C exhibits stability better than 3x10-11 at 1 second; accuracy better than 1 part in 1010; and drift of less than 5x10-11per month. For many applications, such as the calibration of the internal OCXO in counters, spectrum analyzers, and communications test systems, this provides more than an order of magnitude-margin in every parameter, with a price that is easily within the budget of most calibration laboratories.

Whether the 8040C is deployed on the back of a military vehicle, within a laboratory or at a broadcast station, installation is simple and quick. Users essentially plug the unit in and walk away.

For more information, contact Symmetricom Timing, Test and Measurement at:

2300 Orchard Parkway
San Jose, California
95131-1017

tel: 408.433.0910
fax: 408.428.7896
info@symmetricom.com
www.symmetricom.com

Figure: Rubidium 8040C - Rear Panel

SYMMETRICOM, INC.
2300 Orchard Parkway
San Jose, California
95131-1017
tel: 408.433.0910
fax: 408.428.7896
info@symmetricom.com
www.symmetricom.com