Symmetricom

8040C

Rubidium Frequency Standard

STANDARD FEATURES

- Six Configurable Outputs
- RF & Pulse Outputs
- AC Input
- Remote Monitoring & Control
- GPS Disciplining
- CE Compliant

OPTIONAL FEATURES

- Twelve Configurable Outputs
- Low Phase Noise

Today's precision test equipment requires a stable reference to make accurate frequency measurements. The equipment used varies depending on stability, accuracy and output signal format. All of these parameters can lead to a multitude of configurations, platforms and products that can be expensive to implement and maintain.

The Symmetricom 8040C solves this problem by providing a stable and accurate frequency reference with multiple output signal formats in an easy to install 1U rack mountable chassis.

Unlike other units, the 8040C offers configurable RF outputs, GPS disciplining and a RS-232 interface for command and control.

The 8040C has six outputs, each of which can be user configured to provide a 1, 5 or 10MHz sine or square wave or 1PPS output. The standard configuration for the 8040C has three 10MHz, one 5MHz, one 1MHz and one 1PPS output.

A 1PPS input allows the 8040C to be disciplined by a GPS receiver for improved frequency accuracy and long-term stability. The 8040C auto adaptive algorithm allows plug and play connectivity for easy GPS disciplining.

The 8040C is field configurable, allowing the instrument to support changing functionality in evolving systems.

If more outputs are required, the 8040C can be purchased with an option card that adds six additional outputs bringing the total output configuration to twelve. The option card, like the standard unit, can be configured for any combination of available frequency or format.

Also available is a low phase noise version that provides a greater than 30 dB improvement in close in phase noise.

The 8040C is designed around Symmetricom's award winning SA.22C rubidium oscillator, which is deployed worldwide as the reference oscillator in wireless base stations.

8040C Rubidium Standard

8040C SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

	Standard	Low Noise
• Frequency outputs		
Frequency:	1, 5 & 10MHz	1, 5 & 10MHz
Format:	Sinewave	Sinewave
Amplitude:	1Vrms	1Vrms
Harmonic:	<-40dBc	<-40dBc
Non-harmonic:	<-60dBc	<-80dBc
Connector:	BNC	BNC
Load impedance:	50Ω	50Ω
Location:	rear panel	rear panel
Frequency:	1,5 & 10MHz	1,5 & 10MHz
Format:	TTL	TTL
Amplitude:	>3V Peak	>3V Peak
Pulse width:	50% duty cycle	50% duty cycle
Connector:	BNC	BNC
Load impedance:	50Ω	50Ω
Location:	rear panel	rear panel
• Timing outputs		
Format:	1PPS	1PPS
Amplitude:	>3V	>3V
Pulse width:	400ns	400ns
Rise time:	<20nS	<20nS
Jitter:	<10pS RMS	<10pS RMS
Connector:	BNC	BNC
Load impedence:	50Ω	50Ω
Location:	rear panel	rear panel
• Timing inputs		
Sync input:	1PPS	1PPS
Amplitude:	TTL compatible	TTL compatible
Connector:	BNC	BNC
Load impedence:	50Ω	50Ω
Location:	rear panel	rear panel

PERFORMANCE PARAMETERS

• Accuracy at shipment:	<±5E-11	<±5E-11
• Retrace:	<±5E-11	<±5E-11
On-off-on:	24h, 24h, 24h @ 25°C	
• Control range:	±1E-6 with 1E-12 resolution	±1E-6 with 1E-12 resolution
• Warm-up time		
Time to lock:	<5 minutes	<5 minutes
Time to <1E-9:	<8 minutes	<8 minutes
• GPS Disciplining		
Time for valid output:	<20 minutes	<20 minutes
Frequency accuracy:	<1E-12	<1E-12
• Stability		
Avg. Time (s)	**Allan Deviation**	**Allan Deviation**
1	<3.0E-11	<1.5E-11
10	<1.0E-11	<8E-12
100	<3.0E-12	<2.5E-12
• Aging		
Monthly:	<5E-11	<5E-11
Yearly:	<5E-10	<5E-10

	Standard	Low Noise
• SSB phase noise		
Offset (Hz)	10MHz	10MHz
1	-72dBc	-100dBc
10	-95dBc	-130dBc
100	-130dBc	-144dBc
1,000	-140dBc	-150dBc
10,000	-148dBc	-150dBc
• Remote system interface & control RS-232-C (DTE configuration)		
Connector RS-232:	9-pin male rectangular D	9-pin male rectangular D
Location:	rear panel	rear panel
Protocol:	8 data bits 1 stop bit	8 data bits 1 stop bit
Baud rate:	57600	57600

ENVIRONMENTAL & PHYSICAL SPECIFICATIONS

• General environment (operating)	
Temperature:	0°C to 50°C
Temperature coefficient:	<3E-10
Storage temperature:	-40°C to 70°C
Humidity:	95% up to 50°C
Magnetic field:	DC (±2 Gauss)
Magnetic sensitivity:	<4E-11/Gauss
Altitude (operating):	0 to 50,000 feet

• AC power requirements

90 to 240 VAC
47 to 63 Hz
25W (operating)
45W (warm-up)

• Dimensions/Weight

19"W x 1.75"H x 12"D
<6 lbs.

• MTBF = 232,500 hours IAW Telcordia (Bellcore) SR332, Issue 1

ORDERING INFORMATION	Part No.
• 6 output standard performance	15230-101
• 12 output standard performance	15230-102
• 6 output low phase noise	15230-104
• 12 output low phase noise	15230-105

8040C connections (shown with 12 output option)

Symmetricom

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