



Model FE-5669 Series

**VERY HIGH PERFORMING RUBIDIUM OSCILLATOR
WITH VERY LOW DRIFT, VERY LOW PHASE NOISE,
AND EXCELLENT SHORT-TERM, LONG-TERM, AND
TEMPERATURE FREQUENCY STABILITY**

APPLICATIONS

- U.S. Department of Defense and Agencies
- Low Dynamic/Tactical or Stationary Environments Including Ground Mobile Vehicles, Surface Ships, Fixed-Wing Aircraft and Stationary Sites
- Disciplined Clock in GPS-based Assured Position, Navigation and Timing (A-PNT) References
- Signals Intelligence (SIGINT) Systems Requiring Compliance to JASA v3 Annex 1: Time, Frequency, Navigation and Geodesy (TFNG)(U)
- Long-Term Holdover Clock for Continued Operation when GPS and External Disciplining References are Denied or Degraded
- Reference Oscillator for Radar, Software-Defined Radios (SDR), Guidance Systems, and Secure Communications Systems

FEATURES

- Low Drift (Aging): 1.0E-12/ Day, 1.0E-11/Month and 1.0E-10/Year
- Excellent Short Term Stability (ADEV)
- Very Low Phase Noise at Full Range of Offsets
- Very Low Spurious and Harmonic Noise
- Excellent Retrace
- Digital Tuning (RAFS-C Protocol, C1.7): Adjustment Range (1.0E-10) and Resolution (1.0E-15)
- Excellent Frequency Stability Over Full Operating Temperature Range (-20°C to +60°C)
- Separate Configuration and Control (Mini-USB), Signal and Power (Micro-D) and Frequency Output (SMA) Connectors to Minimize Noise
- High Reliability: MTBF > 200,000 Hours
- Power-On Test and Built-In Test (BIT) Monitoring

AVAILABLE CONFIGURATION OPTIONS

- g-Compensation for Operation to Specification in High Dynamic Environments (DC to 1 kHz, per g): -1: 5.0E-11, -2: 1.0E-11 or -3: 5.0E-12 (/g, all axes)
- Output Frequencies from 10 to 100 MHz Available
- 1PPS Input for Direct Disciplining From a Known-Good External Reference Source
- Single Power Supply Operation: 15 ± 0.7 Vdc or 24 ± 0.7 Vdc Input

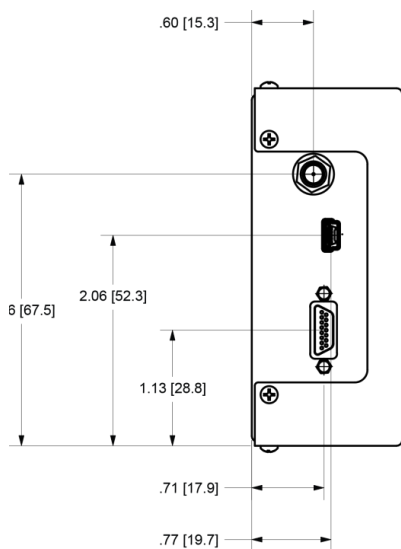
SPECIFICATIONS - DIGITAL VHP RUBIDIUM

PARAMETER		UNIT
Output Frequency (Sine Wave)	10.0	MHz
Amplitude Into 50 ohms	≥+5	dBm
Drift (Aging + Long Term Stability)	≤1.0E-12	/Day
	≤1.0E-11	/Month
	≤1.0E-10	/Year
Short Term Stability (ADEV)		
T = 1	≤ 6.0E-12	
T = 10	≤ 2.0E-12	
T = 100	≤ 6.0E-13	
T = 1000	≤ 2.0E-13	
Phase Noise @ 10 MHz (Stationary):		
@ 1 Hz offset	≤-110	dBc/Hz
@ 10 Hz offset	≤-140	dBc/Hz
@ 100 Hz offset	≤-150	dBc/Hz
@ 1 kHz offset	≤-155	dBc/Hz
@ 10 kHz offset	≤-155	dBc/Hz
Spurs	≤-60	dBc
Harmonics	≤-30	dBc
Retrace (On 24hrs-Off 48hrs-On 24hrs)	≤ ±2.0E-11	
Digital Adjustment Range (RAFS-C)	±1.0E-10	
Digital Adjustment Resolution (RAFS-C)	≤1.0E-15	
Operating Temperature (at Baseplate):	-20 to +60	°C
Storage Temperature Range	-40 to +75	°C
Frequency Stability vs. Temperature		
-20 °C to +60 °C	5.0E-11	
Warm-up Time to 1.0E-10 @ 25 °C	≤ 10	min
Serial Communication (RS-232) (MD15)		
Input Power (15 Vdc Option):	15 ± 0.25	Vdc
- Power (Maximum @ 25 °C)	45	W
- Power (Steady State @ 25 °C)	20	W
- Current Draw (Maximum @ 25°C)	3.05	A
- Current Draw (Steady State @ 25°C)	1.36	A
Frequency Stability vs. Input Voltage	< 8.0E-12	/V
Magnetic Field (≤ 5 Gauss DC Magnetic Field (1399-070 Residual)	≤ 1.0E-11	/Gauss
Dimensions: 3.65" x 5.25" x 2.13"		in
Weight (± 3%)	3.72	lbs.



FE-5669 DIGITAL VHP RUBIDIUM OSCILLATOR PACKAGE OUTLINE DRAWINGS and PINOUT:

J1 PIN FUNCTION TABLE	
PIN	DESCRIPTION
1	+15V IN
2	GND
3	SPARE
4	GND
5	SPARE
6	NC
7	GND
8	PSM
9	SPARE
10	GND
11	1PPS 0+
12	LOCK IND
13	1PPSI-PIN
14	SDO
15	SDI



J3 PIN FUNCTION TABLE	
PIN	DESCRIPTION
1	5V
2	USB-DN
3	USB-DP
4	NC
5	GND

