



**HI-TEMP**

*Extreme Environment*

*Hi-Reliability Frequency Control Components*



**FREQUENCY MANAGEMENT | International**



**FMI**

Our unique and unmatched application design history (1986 to present, with a dedicated focus on the future) specifically targets the expanding systems applications for electronic frequency control products used in Oil & Gas Exploration, Geothermal Energy Generation, and Advanced Avionics Engine Sensor & Control.

At FMI, we continue to push the technology envelope for compelling Extreme Environment products, thereby enabling us to respond to your ever evolving needs.

In creating a technology framework for this area of focus and specialization we are uniquely situated to provide you with the most efficient solutions and response times.

Offering engineered solutions that are reliable, innovative, and focused on the demanding customer requirements for extreme environment frequency and timing control.



## FREQUENCY MANAGEMENT | International

*The FMI Quality System is Certified to ISO 9001:2008*

Our unique design solution advantages:

- Widest Product Offering and Operating Temperature Ranges
- Optimal Frequency Stability vs. Temperature Options
- Best Performance with the Lowest Power Consumption
- Established Reliability: Longest Operating Life | Survivability
- Unparalleled Design, Reliability, & Customer Service
- Fast Turn Around for Hi-Reliability Prototypes
- Solutions for Every Temp. Range, -180°C to +500°C



Tel: 714 373 8100 | 800 800 9825 [XTAL]

FMI offers innovative and efficient solutions that have been developed exclusively for Extreme Environment applications:

- Oil & Gas Exploration Systems & Tools  
Geothermal / Monitoring Systems
- Space Based Electronic Systems
- Aircraft Engine / Avionics
- Other Military & Industrial Subsystems

## ISO 9001:2008 Certified & Registered

We are committed to providing the best product performance & quality, consistent on-time delivery, and quality customer support. These are integral to our quest for total customer satisfaction.

# Quality Assurance Program

Our dedication to customer satisfaction is the backbone of our quality program.

Compliance to-  
ISO 9001-2008 (Certified & Registered)  
MIL-STD-790  
MIL-PRF-3098  
MIL-PRF-55310  
MIL-STD-883  
MIL-PRF-38534  
MIL-STD-202  
ESD: JEDEC Standard- JESD625-A

Management and Employees at Frequency Management International are empowered and committed to continuously improve all aspects of activities to satisfy our customers & remain a Quality Focused Company.



## Extreme Environment Products for Oil | Gas | Geothermal

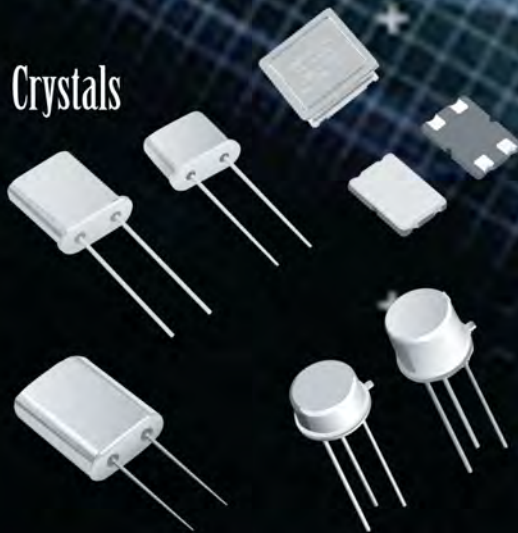
We are proactive in planning new solutions for the next generation down-hole, geothermal, and other extreme environment system applications.

The US Department of Energy selected FMI to develop the next generation crystal oscillators for their geothermal tools.

### Extreme Environment CRYSTAL Product Highlights

- 5x7mm SMD Package, Operating Temperature Established to +240°C
- 5x7mm SMD with Optimized Crystal Cut,  $\pm 60$  ppm, 0 to +200°C, to 38 MHz
- 7x7mm SMD Package Super Compliant Mounting for Very High Shock & Vibration
- TO-5 Low-profile Package (0.175"/4.4mm) from 4 MHz
- HC-49/U Hi-Rel Package from 1.8 MHz (lowest in the industry)
- Highly Tunable Crystals (>2000 ppm) that facilitates any wide tuning range or data recovery and can be used for capacitive pressure sensing to +350°C
- Extremely Linear Temperature Sensor Crystals that Operate to +350°C

### Crystals

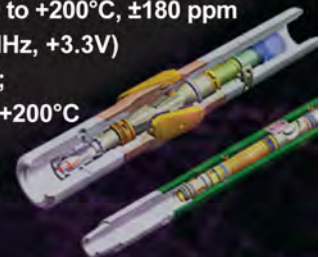


XOs & VCXOs

# Oil & GAS

### Extreme Environment OSCILLATOR Product Highlights

- Extended Operating Life Crystal Oscillators (11 MHz), Half-DIP, >8000 Hours at +280°C
- 5x7mm SMD Low-power at 32.768 kHz with  $\pm 60$  ppm Frequency Stability from 0 to +200°C
- Extreme Low-Power XO at 32.768 kHz, 5x7mm SMD, 280 $\mu$ A at +3.3V; 0 to +200°C,  $\pm 180$  ppm
- 5x7mm SMD Delivering Stability of  $\pm 60$  ppm from 0 to +240°C (38 MHz, +3.3V)
- Super Low-Aging XO, half-DIP, -3.5 ppm over 3500 hours at +175°C;
- 5x7mm SMD XO (1.00 MHz) with Very Long Operating Life; 1 Year at +200°C
- 5x7 mm SMD XO with High Ambient Pressure Tolerance; >7000 psi
- High Frequency Voltage Controlled Crystal Oscillator, to 66 MHz
- Low Jitter XO for High Temperature Applications to 80 MHz





# Space | Radiation Tolerant Solutions

## Extreme Environment Space Product Highlights

- Wide Frequency Range
- Extreme Low and High Temperature Ranges
- Radiation Tolerant from 10 krad TID
- Maximum Use of Established Reliability Components
- Industry Standard Package & Pin Connections
- Industry Standard Operating Voltages & Output Logics
- Industry Leading Screening Work Flows & Options
- Rugged Design & Construction Optimized for Severe Environments
- Very Rugged Crystal Design and Mechanical Assembly
- Long Term Performance & Life Test Under Extreme Conditions
- Portfolio of Active Components:  
ACMOS, SOI-CMOS, HT-SOI-CMOS, & Bipolar Devices
- Optional Hi-Q or Swept Quartz Crystals

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## Avionics Solutions

### Extreme Environment MIL-Grade Product Highlights

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- Targeting both New System Designs and Legacy Replacements
  - Complies to Operating Conditions Beyond Industry Standards
  - Solutions for new Jet Engine Controllers and Sensors at Higher Operating Temperatures
  - Smallest Available Product Footprints
  - Lowest Available Power Consumption
  - Established Reliability
  - Fixed, Variable, & Multiple Frequency
  - Low Phase Jitter
  - Wide Operating Temperature Range | Tight Stability
  - DC to 500 MHz



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Welcome to the new age of Extreme Environment Electronics. FMI offers you the most rugged and advanced frequency control solutions while enhancing product performance in the most demanding environmental conditions.



**FMI**

**Visit Our Web Site for  
 Detailed Product  
 Information**



**VCXO**  
 Ceramic SMD  
 5x7 mm



**XO**  
 Ceramic SMD  
 5x7 mm



**Crystal**  
 Ceramic SMD  
 7x7 mm



**Crystal**  
 Ceramic SMD  
 5x7 mm



**32.768 kHz XO**  
 Ceramic SMD  
 3.2x2.5 mm

[www.frequencymanagement.com](http://www.frequencymanagement.com)

FMI is located in Huntington Beach, CA. We are within easy reach from 3 major airports. Our headquarters includes more than 16000 SF operating space for manufacturing and test equipment, clean room, and administration.

Huntington Beach, CA Facility

