

SPACE

*Extreme Environment
Hi-Reliability Crystals & Oscillators*




FREQUENCY MANAGEMENT | International



FMI





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

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

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:

- Smallest Package | Footprint
- Longest Operating Life | Survivability
- Widest Available Operating Temperature Ranges
- The Lowest Current Designs
- Unparalleled Design, Reliability, & Customer Service
- Fast Turn Around for Hi-Rel Prototypes
- Solutions for Every Temp. Range, -180°C to +275°C



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

The fundamental commitment to our customers is Total Customer Satisfaction. This is reflected in our product performance, quality, consistent product delivery, and effective & timely customer assistance & communication.

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.

Our High Reliability Products target robust systems in Commercial Space, Energy Exploration & Drilling, as well as Geothermal Tool Design. These products leverage our extreme environment design and manufacturing capabilities to offer solutions at the forefront of advanced electronic system design.

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: JESD625-A

ISO 9001:2008 Certified & Registered



Extreme Environment Products for Space Applications

The FMI high-reliability product offering for space includes the smallest footprint for radiation tolerant piezoelectric crystals, crystal controlled clock oscillators and voltage controlled crystal oscillators. We offer optimum and reliable solutions for legacy systems as well as brand new requirements. Whether for commercial payloads or deep space and scientific missions, our products are designed to deliver reliable performance for some of the most demanding operating conditions. FMI products are operating in space based systems such as International Space Station, Galileo, ExoMars, and many others.

Our forward looking solutions developed for NASA include extreme high temperature piezoelectric crystals operating to +500°C and radiation tolerant miniature surface mount crystal controlled oscillators with operating temperature ranges from -180°C to +125°C.



XOs & VCXOs

Space

Crystals



Documents Available Upon Request-

- General Specification
- Detail Specification
- Screening | QCI - Test Specifications
- Radiation Test Data

Capabilities & Features

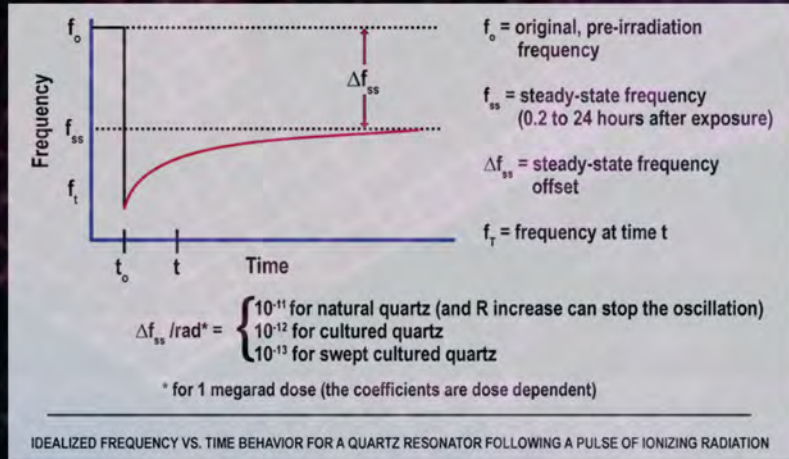
- Crystals, Oscillators, VCXOs
- Smallest Package Footprints
- Radiation Tolerance: from 10krad and up
- Voltage Options- 1.8V, 2.5V, 3.3V, & 5V
- Temperature Range -180°C to +275°C
- Tight Stability Over Temperature
- Full Class S Screening in compliance with MIL-PRF-38534
- Fast Turn EM & EQMs
- CMOS, Sine-wave, & LVDS
- Low Phase Jitter
- Wide Frequency Range Choice of Hi-Q or Swept Quartz Crystals
- Facilitated Source Inspection Provisions

Capabilities & Features (continued)

- Extreme Low and High Temperature Ranges
- Maximum Use of Established Reliability Components
- Industry Standard Package & Pin Connections
- Optimal Solutions for Short and Long Life Missions
- Industry Leading Screening Work Flows & Options
- Rugged Design & Construction Optimized for Severe Environments
- Robust Manufacturing & Assembly Techniques
- 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

Best performance for deep space and extreme low operating temperatures

Frequency Stability Vs. Radiation



J. Vig; IEEE, UFFC.

The information provided in this brochure reflects our extreme environment high-reliability products and manufacturing capabilities. Our web site offers a wide range of frequency control solutions for general purpose commercial, industrial, and wireless applications.

Avionics Solutions

Extreme Environment MIL-Grade Product Highlights

- 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

Gas & Oil | Energy Exploration Solutions

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.

US/DOE selected FMI in 2008 to develop the next generation crystal oscillators for their geothermal tools.

- Smallest Product Foot Prints
- Best Available Frequency Stability vs. Temperature Range Options
- Industry Standard Packages and I/O Connections
- Industry Standard and Custom Operating Voltages
- Lowest Power Consumption for Battery Operated Tools
- Vast Experience in Very Long Operating Life at the Highest Temperature
- Wide Range of Product Offering
- Highest Operating Temperature
- DC to 110 MHz
- Temperature Sensing Devices

www.FrequencyManagement.com

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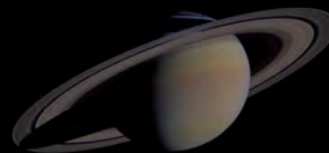
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FMI



CRYSTALS
OSCILLATORS
VCXOS

Located within easy reach from 3 major airports, our headquarters is located in Huntington Beach, CA with more than 16000 SF operating space for manufacturing and test equipment, clean room, and administration.

Huntington Beach, CA Facility

