BARTEC SYS.COM’s MARMOT Seismic Monitoring and Trip System perfectly responds to the increasing safety demand in vulnerable industries such as Nuclear Power Plants (NPP), Nuclear Storage Facilities and Liquefied Natural Gas Storage (LNG). With its distributed intelligence it guarantees dependable alarms for automatic shut down (trip) information depending on the impact of earthquakes on structures.

**Seismic Monitoring and Trip System**

**Applications**
- Nuclear Power Plants
- LNG-Terminals
- Gas Turbine Power Plants
- Chemical Process Industries
MARMOT Seismic Monitoring and Trip System

**Trip**
- Safety Category A (IEC 61226)
- Safety Category C (IEC 61226)
- SIL 3 (IEC 61508)
- Automatic shut down control
- Triple redundancy

**Strong Motion Recorder**
- MS2002+ Accelerometer
- A/D Converter
- DSP: Filtering
- CAV Calculation
- Transient Recorder
- Serial Connections Copper/Fiberoptic

**Free Field Recorder**
- MS2007+ Accelerometer
- A/D Converter
- DSP: Filtering
- CAV Calculation
- Transient Recorder
- Serial Connections Copper/Fiberoptic

**Safety Category C (IEC 61226)**
- Safety Category C
- Trip
- Serial Connections Copper/Fiberoptic

**System State of Health**
- Log files
- Power Supply 1
- Power Supply 2
- Voting Logic
- 3 relays
- Time synchronization

**Display**
- Keyboard
- PC
- Printer

**CABINET**
- Seismically braced

**MONITORING**
- Safety Category C (IEC 61226)
- Serial Connections Copper/Fiberoptic

**MRSK2002 – Seismic Switch/Strong Motion Recorder**
- MS2002-5M16-K
- MR2002-SM24-K
- MS2002+ Recorder
- Safety Class C
- Alarm Relay Output
- User Serial Interface
- A/D Converter
- Accelerometer
- Transient Recorder
- Safety Serial Interface
- Relay Output

**MR2002-SM16-K**
- Seismic Switch
- Safety Category A
- Recorder
- Safety Class C
- Alarm Relay Output
- User Serial Interface
- A/D Converter
- Accelerometer
- Transient Recorder
- Safety Serial Interface
- Relay Output

**MR2002-SM24-K**
- Recorder
- Safety Category C
- Alarm Relay Output
- User Serial Interface
- A/D Converter
- Accelerometer
- Transient Recorder
- Safety Serial Interface
- Relay Output

**MS2002+**
- MARMOT Seismic Monitoring and Trip System
- Seismic Intensity (CAV)
- Safety Category A (IEC 61226)
- Trip
- Serial Connections Copper/Fiberoptic

**MS2008+**
- MS2007+
- System State of Health
- Log files
- Time Histories
- Spectra Comparison
- Power Supply 1
- Power Supply 2
- SYSCOM
- NCC
MARMOT

Seismic Monitoring and Trip System for Nuclear Power Plants / LNG-Terminals / Gas Turbine Power Plants / Chemical Process Industries

BARTEC SYSCOM's MARMOT Seismic Monitoring and Trip System perfectly responds to the increasing safety demand in vulnerable industries such as Nuclear Power Plants (NPP), Nuclear Storage Facilities and Liquefied Natural Gas Storage (LNG). With its distributed intelligence it guarantees dependable alarms for automatic shut down (trip) information depending on the impact of earthquakes on structures.

MARMOT complies with all the relevant standards applicable in these industries, fully tested and certified. MARMOT's modular design offers cost effective solutions for the individual requirement of a plant structure. The use of proven state-of-the-art technology guarantees a minimum of 15 years of life and support!

<table>
<thead>
<tr>
<th>1.</th>
<th>IEC 60780</th>
<th>10/1998</th>
<th>Nuclear power plants - Electrical equipment of the safety system - Qualification</th>
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<tr>
<td>2.</td>
<td>IEC 60980</td>
<td>06/1989</td>
<td>Recommended practices for seismic qualification of electrical equipment of the safety system for nuclear generating stations</td>
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<td>3.</td>
<td>RCC-E</td>
<td>12/2005</td>
<td>Design and construction rules for electrical equipment of nuclear islands</td>
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<td>4.</td>
<td>IEC 61180-1</td>
<td>10/1992</td>
<td>High-voltage test techniques for low-voltage equipment</td>
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<td>IEC 60439-1</td>
<td>04/2004</td>
<td>Low-voltage switchgear and control gear assemblies - Part 1: Type-tested and partially type-tested assemblies</td>
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<td>03/2007</td>
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<td>IEC 60068-2-2</td>
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<td>Environmental testing - Part 2-2: Tests - Test B: Dry heat</td>
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<td>Basic environmental testing procedures. Part 2 : Tests - Test N: Change of temperature</td>
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<td>Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)</td>
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<td>IEC 61000-4-2</td>
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<td>Electromagnetic compatibility (EMC) - Part 4: Testing and measuring techniques - Section 2: Electrostatic discharge immunity test - Basic EMC publication</td>
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<td>15.</td>
<td>IEC 61000-4-3</td>
<td>11/2007</td>
<td>Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test</td>
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<td>Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test</td>
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<td>Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test</td>
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<td>18.</td>
<td>IEC 61000-4-6</td>
<td>05/2006</td>
<td>Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields/Combines IEC 61000-4-6 (2003-05), AMD 1 (2004-10) and AMD 2 (2006-03)</td>
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<td>IEC 61000-4-8</td>
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<td>Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques; section 8: power frequency magnetic field immunity test; basic EMC publication</td>
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<td>Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques Voltage dips, short interruptions and voltage variations immunity tests</td>
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<td>09/2006</td>
<td>Testing and measurement techniques - Ring wave immunity test</td>
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<td>07/2006</td>
<td>Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments</td>
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<td>EN 55011</td>
<td>08/2007</td>
<td>Industrial scientific and medical (ISM) radiofrequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement</td>
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<td>24.</td>
<td>IEC 61000-4-9</td>
<td>06/1993</td>
<td>Electromagnetic compatibility (EMC) - Part 4-9: Testing and measurement techniques; Pulse magnetic field immunity test</td>
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<td>25.</td>
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<td>06/2007</td>
<td>Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test</td>
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