



EARTHQUAKE SAFETY SYSTEMS INC.

www.eqsafetysys.com

PRODUCT APPLICATION SUMMARY

Subject: Seismic Monitoring and Earthquake Actuated Shutoff
Reference: Your request for information

The below is provided in response to your request for product application info.

SATURN S-001 Seismic Switches

For low-power or indoor applications requiring a change-of-state of Form C relay contacts (single-pole double-throw), we offer the **Model S-001 Saturn Seismic Switch**. Standard installation is horizontal floor/pad-mount (vertical mount optionally available) via a single anchor mounting baseplate (supplied with the Saturn). Enclosure penetrations are via two compression fittings which can be replaced with 3/4" conduit fittings at the discretion of the installing electrician. The typical application for the Saturn S-001 is to provide a seismic signal to initiate PA messages or to signal the owner's PLC/CPU based alarm/control system actuating 'latching' valves with manual reset. Properly engineered systems will not permit valves to re-open on erroneous PLC reset commands, PLC re-boot, etc. Alternatively, because it is a UL registered product, 110/220 Vac solenoid actuated valves (i.e. pneumatic, hydraulic or motor spring return) can be operated (normally energized) by the Saturn-series products. For NEMA4X or outdoor locations use a secondary enclosure. If greater autonomy, bypass switches or other additional features are required consider the Apollo 2100 Series unit.



APOLLO 2100 & Guardian 3000 Seismic Switches

For industrial applications requiring a little more operating autonomy (on loss of power) or operation in a harsher environment there is the **Apollo 2100 Series** unit (heavy duty relay contacts, optional NEMA 4X primary enclosure, bypass switch, Low & High Seismic visual indicators, etc.). The enclosure is larger and more "conduit friendly". The Apollo Series units offer direct control of non-motor, low-power shutoff devices (i.e. solenoids, industrial relays), NEMA 4, UL, horizontal mount with universal 110/220 Vac power supply is standard. A secondary enclosure is recommended for outdoor locations and to protect the instrument from direct impact. In a similar enclosure but, with the added capability of broadcasting a user-recorded message (i.e. "duck, cover, hold") is the **Apollo Guardian** model.



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PRODUCT APPLICATION SUMMARY (cont'd)

MSC Master Seismic Controllers

For applications requiring 24Vdc back-up power and control (i.e. solenoid or motor-actuated valves for natural gas, toxic gas, water, diesel fuel oil, corrosive liquid/gas, cooking oils, etc.), extended autonomy, 2/3 voting, AND/OR operation with flow meter, government broadcast EEW system, etc., ESS offers the **Model MSC-T and MSC-U Master Seismic Controllers**. Supplied with an integral motor-control sub-assembly (motor contactors) and motor circuit protection is the **Model MSC-W** which ESS primarily markets to the water industry. The **MSC-W** is typically wired to automatically close a ¼-turn valve (ball, butterfly) using AUMA, Bettis, EIM, Keystone, Limatorque, Rotork or virtually any electric, hydraulic or pneumatic actuator device. Although 1/4-turn, butterfly valve applications are common, the MSC-W is designed to work with any just about any 24 Vdc actuated valve assembly. MSC systems are used for fuel oil (diesel) lines, LP, NG, LNG, cooking oils, chlorine- virtually any media that requires earthquake actuated automatic shutoff.

All of the preceding ESS units ship with a tri-axial solid-state trigger module featuring user-adjustable acceleration setpoints (X, Y and Z axes), band-pass filtering to preclude actuation from non-seismic vibration, built-in diagnostic tests, and more. Unit diagnostics, acceleration setpoint adjustment and the recovery of XYZ peak acceleration information is accomplished via a USB or RS-232C serial interface- using popular downloadable (some free) serial communication programs (i.e. HyperTerminal, PuTTY, TeraTerm, etc.).



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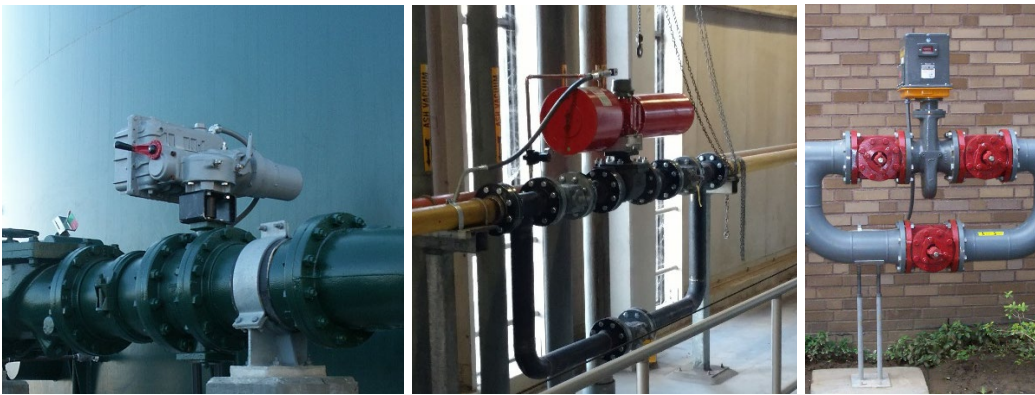


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APPENDIX A:

Example of Actuated Valves Controlled and/or Powered by ESS Products



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