DSD-060

EARTHQUAKE SHUTDOWN UNIT

DESCRIPTION

DATAKOM DSD-060 is a high-tech unit which detects seismic acceleration. On the occurrence of an earthquake it closes relay contacts to shutdown any critical devices such as generators, elevators, valves and industrial equipment. Thus it is possible to minimize the probable damage that occurs after an earthquake.

DSD-060 is a very cost effective device for shutdown applications. The device is based on highly reliable dual axis silicon micromachined acceleration sensors. It is lightweight, small, maintenance free and capable of performing self-test.

The unit has two independent relay outputs. The seismic properties of the standard output are conformal to ANSI Z.21-70(1981) and ASCE 25-97 standards. The auxiliary relay output which is more sensitive is intended for warning purposes.

The unit has a user adjustable sensitivity potentiometer. The adjustment range is between low and high limits allowed by the standards.

FEATURES

- ***Conformal to ANSI Z.21-70 (1981)***
- ***Conformal to ASCE 25-97***
- ***Microprocessor controlled***
- ***Semiconductor acceleration sensors***
- ***Dual axis***
- ***Non-seismic accelerations filtered***
- ***Separate outputs for standard and high sensitivity***
- ***Maintenance free***
- ***Capable of performing self-test***
- ***Operates on 10 to 30 volts DC***
- ***Direct interface to gensets, elevators and alarm systems***
- ***Overload protected relay outputs***
- ***Resin molded design***

TECHNICAL SPECIFICATIONS

Sensor: Dual axis micro-machined polysilicon accelerometers
Acceleration Threshold: User adjustable from 0.1g to 0.25g. The high sensitive secondary output is adjustable from 0.03g to 0.1g
Detection Delay: 0.5sec maximum
Supply Voltage: 10 to 30V-DC
Power Consumption: 30mA. Additional 40mA for each energized relay
Frequency response: 0.5 Hz to 10 Hz. Non-Earthquake signals are filtered
Switching: 2 low power relays for high and low sensitive applications
Diagnostics: Self-diagnostics at power-on and reset
Operating temperature range:
-20 to 70 °C (-4 to +158°F)
Weight: 500 grams (approx.)
Dimensions: 115x157x40 mm
Conformity: ANSI Z21.70(1981), ASCE 25-97

Conformity (EU directives)
-2014/35/EC (low voltage)
-2014/30/EC (electro-magnetic compatibility)
Norms of reference:
EN 61010 (safety requirements)
EN 61326 (EMC requirements)

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APPLICATIONS

Generators and Industrial Equipments

After a heavy earthquake, generally the AC power is cut in order to prevent short circuit and fire risk. However, if an automatic generator is available, it runs automatically and causes possible damage. The DSD-060 gives a shutdown signal to the generator control panel if the seismic motion exceeds the predefined level. Therefore DSD-060 may be used in all critical installations to be shutdown during an earthquake.

Elevators

If an earthquake happens in daytime, especially in work hours, too many people get stuck in the elevators. Additionally the displacement of counterweights from guides and wire ropes from pulleys can be hazardous and needs expensive repairs if the elevators are permitted to continue operation.

DSD-060 Earthquake Shutdown Device will issue a shutdown signal to the elevator control panel. The elevator should not be given in service unless an elevator mechanic has the opportunity to examine the mechanical system and make any necessary repairs.

According to the regulation in California State a seismic shutdown device must be provided in every building in which an elevator or moving walk is installed.

Natural Gas, LPG, LNG facilities

Natural Gas and LPG are often used in industrial facilities and in houses. The crack and the leakage occurred on the pipes and valves during a strong earthquake cause fire risk. The DSD-060 will help to minimize fire risk by closing automatically explosive gas and chemical material valves during an earthquake.

Audible Warning

The DSD-060 unit is capable to give audible warning through the high sensitive output. Therefore it is possible to warn the people in public areas such as schools, shopping malls, markets and offices. This device may also be used in houses to alert inhabitants if an earthquake happens while they are sleeping.

DISPLAYS

OPERATIONAL: It turns on continuously for 15 seconds after power-up or reset. It flashes while the unit is operational.

WEAK MOTION: It turns on when the unit detects a weak motion. It turns off when the motion is over.

STRONG MOTION: It turns on when the unit detects a strong motion. It turns off when the motion is over.

YELLOW ALARM: It turns on when the unit detects a weak motion. It turns off after manual reset. This indicator also shows the position of the auxiliary relay output.

RED ALARM: It turns on when the unit detects a strong motion. It turns off after manual reset. This indicator also shows the position of the standard relay output.

SENSITIVITY ADJUSTMENT: It defines the seismic detection sensitivity. The adjustment range is between 0.10g and 0.25g. It is advised to set this potentiometer to mid-course.