



DESCRIPTION

The LVU-050 is a high-tech unit which detects seismic motion. On the occurrence of an earthquake it gives audible and visible alarms and closes a relay contact to shutdown gas and industrial valves. Thus it is possible to minimize the fire risk after an earthquake.

LVU-050 is a very cost effective device for shutdown applications. The unit is based on highly reliable dual axis seismic sensors. It is small, maintenance free and capable of performing self-test.

The unit operates on mains power. It incorporates a lead-acid battery and an automatic battery charger which allow uninterrupted operation even in case of AC power failures.

During long mains failures, if the internal battery gets weak, the unit gives audible and visible alarms.

The seismic properties of the unit are conformal to ANSI Z.21-70(1981), ASCE 25-97 and TS 12884 standards.

FEATURES

- Conformal to ANSI Z.21-70 (1981)*
- Conformal to ASCE 25-97*
- Conformal to TS 12884*
- Microprocessor controlled*
- Semiconductor acceleration sensors*
- Dual axis*
- Non-seismic accelerations filtered*
- High current relay output*
- Maintenance free*
- Capable of performing self-test*
- Operates on 170 to 270 V-AC*
- Direct interface to 12V-DC valves*
- Plug-in connection system for easy replacement*
- Small dimensions (232x200x65mm)*
- Low cost*

DISPLAYS

OPERATIONAL (yellow) : It turns on continuously for 6 seconds after power-up or reset. It flashes while the unit is operational.

EARTHQUAKE (red) : It turns on when the unit detects a strong motion.

CABLE BROKEN (red) : It turns on when the unit detects the rupture of the solenoid cable.

BATTERY LOW (red) : It turns on if the battery voltage falls below the Battery Low Warning Limit.

SELF TEST

The unit performs self test at power_on or reset. During the self test, the **OPERATIONAL** led turns on steadily.

The self test consists on the application of an external acceleration signal to the sensors and checking back the detection.

If the unit passes self test, the **OPERATIONAL** led starts to flash normally. If the self test fails, all leds flash, the audible alarm is activated and the relay output is energized.

INSTALLATION

The unit is designed for vertical mounting. Thus the sensors will be placed in the horizontal plane as requested by the standards.

The unit has an indoor type panel. Do not install the unit outdoor or at highly humid or warm environments.

The solenoid valve used should have a 12 V-DC coil. Please contact us for the list of compatible solenoids.

The solenoid cable should not exceed 12 metres with 2x1mm² cable and 20 metres with 2x1.5mm² cable.

Energize the unit only after the installation is complete. When the **OPERATIONAL** led is flashing, press the **TEST** key in order to check valve operation.

WARNINGS

After installation, the **OPERATIONAL** led should be flashing.

No red light should be visible on the unit. However if the battery is discharged, the **BATTERY LOW** led may turn on for a few minutes. Please reset the unit in this case. If the led turns off, this is not a failure.

If the **EARTHQUAKE** led turns on at power-on, please reset the unit. It will turn off.

PERIODIC MAINTENANCE

Do not wash the unit. Use a soft damp cloth if necessary.

MONTHLY MAINTENANCE: check that the yellow led is flashing and no red led is on.

YEARLY MAINTENANCE:

- 1) Check that the yellow led is flashing and no red led is on.
- 2) Press the **TEST** button and check the solenoid operation.
- 3) Press the **RESET** button. Check that after a few seconds, the yellow led is flashing and no red led turns on.

AFTER THE EARTHQUAKE

The unit will operate the solenoid valve during the earthquake.

Do not reset the unit. It will be reset only after checking earthquake damages by an authorized person, otherwise severe risks may occur.

TECHNICAL SPECIFICATIONS

AC Power Supply Range: 170 to 270 V-AC

AC Frequency range: 45 to 65 Hz AC

Power Consumption: 3 VA max **Battery**

Voltage range: 11.5 to 16.3 V-DC

12V-DC Supply Current:

15mA typical

60 mA max. (relay output open)

Relay output: 10A / 12V-DC

Output Pulse Duration: 0.25 sec. (repeated every 30 sec.)

Audible Alarm: through 85 dB/1m buzzer

Internal Battery: 2.2 A-h / 12V-DC

Battery Life: minimum 24 hours
typically 200 hours

Battery Low Warning Limit: 11.5 +/- 0.3 V-DC

Sensor: Dual axis micro-machined polysilicon accelerometers

Acceleration Threshold: 180 mg at 2.5Hz

Detection Delay: 0.5sec maximum

Frequency response: 0.5 Hz to 10 Hz.

Non-earthquake signals filtered **Cable**

Broken Limit: 680 ohms (typical)

Diagnostics: Self-diagnostics at power-on and reset

Operating temperature range:

-20 to 70 °C (-4 to +158°F)

Weight: 3200 grams (approx.)

Dimensions: 232 x 200 x 65 mm (W x H x D)

Conformity: ANSI Z21.70(1981)

ASCE 25-97

TS 12884