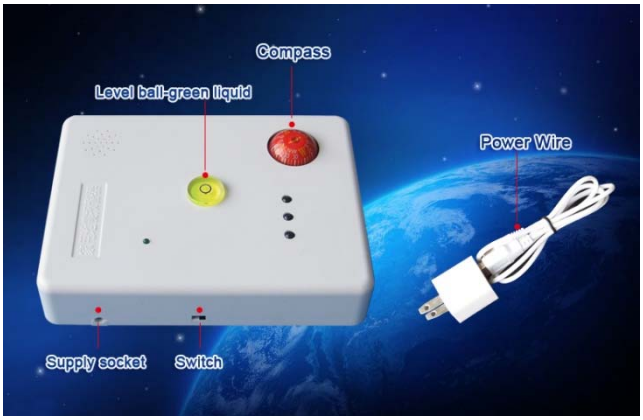


Figure 1. Physical photo of ATEQA2015

FEATURES

Three variables detection:

Geomagnetism fluctuation

Magnetic North and South Pole reverse

Vertical P wave variation

Alarm threshold: ≥3 Richter scale quake

Internal back up battery standby time: 120 hours

AC-DC adaptor power supply

No installation needed

DESCRIPTION

ATEQA2015, a household earthquake alarm, is designed to be used as an auxiliary alarm, to give a warning signal before and during the earthquake occurs. It predicts the earthquake by sensing the variables such as geomagnetism loss, magnetic north and south poles reverses, and the vertical P wave. This can gain seconds or more warning time before the earthquake arrives.

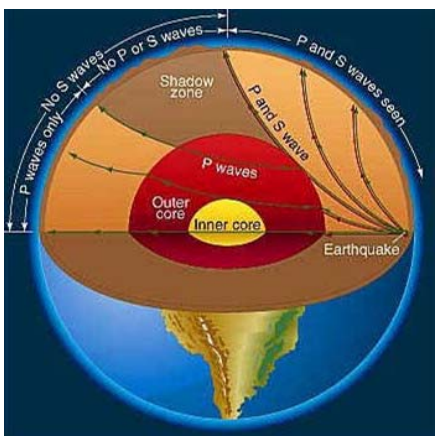
The signal processing circuit inside can distinguish effectively between the P wave signal and other vibration or sound signals to avoid false alarm.

OPERATION PRINCIPLE

1. Geomagnetism Loss Alarm:
Some earthquakes cause magnetic field changes, and this earthquake alarm, ATEQA2015, can detect such changes and start alarming automatically.

2. Magnetic North and South Pole Reverse: Some earthquakes cause the north and south magnetic poles to reverse. The compass inside this earthquake alarm will detect this reverse and trigger the alarm to sound. Therefore, the compass variation indicator light will flicker when there are magnetic north and south poles changes.

3. Longitudinal P Wave Variation Alarm: All the earthquakes have two kinds of waves: body wave and surface wave. The former travels through the earth's inner layers and the latter goes through the surface only. The body waves have higher frequency and travels faster. The body wave has two types: P wave stands for Primary wave; and S wave, stands for Secondary wave. The P wave is also called compression wave, which pushes and pulls the solid rock and fluids during its traveling and goes much faster than the S wave. The S wave only moves through solid rock, which moves the rock particles up and down, or side-to-side, perpendicular to the wave's traveling direction. The ATEQA2015 alarm detects the P wave reliably, and this gains a few seconds earlier detection time which may be critical during some large earthquakes.

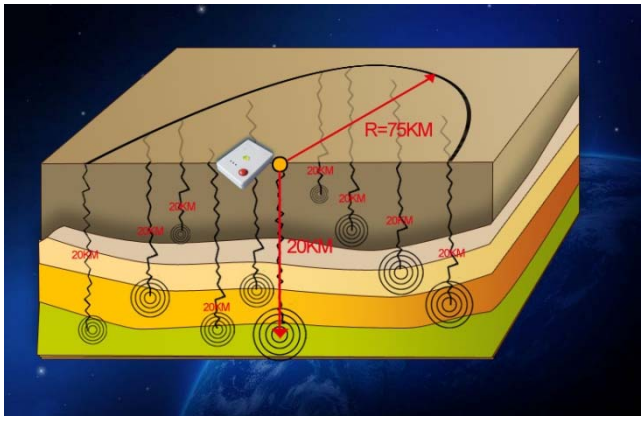


SPECIFICATION

Table 1. Characteristics.

Parameter	Value
Power supply voltage	100 ~ 240 (VAC)
Alarm response speed	< 20ms
Earthquake source detection radius*	75km
Earthquake source detection depth*	20km
Alarm sound level	70dB
Size	6.1×4.6×1.2 (inch) 15.5×11.6×3 (cm)
Weight	8.1 (oz) 230 (g)

*Note：This household earthquake alarm can detect the earthquake successfully within a range of the depth 20Km and the radius 75Km. The meanings for the radius and depth are shown as below:



INSTRUCTIONS

1. Find a proper place. Open the packaging and put the alarm on a horizontal and flat surface, as shown in the Figure 2 below. Keep out of reach of children or pets.
2. Level the alarm. This alarm has to be leveled well in order to detect the P wave precisely. It comes with a level indicator, see Figure 1. When water bubble is in the center position, the alarm is leveled well, otherwise, use some paper or carbon pieces, to level the four corners.

3. Turn it on. Before using the earthquake alarm, it is necessary for users to put it at the horizontal position beyond children's reach, what is most important is leveling the position of level ball-green liquid. Please make sure the level ball-green liquid is in the black ring, as shown in Figure 3, thus enable it to work more accurately. After the leveling, plug in the AC-DC adaptor and turn on the switch.

Figure 2. Put ATEQA2015 on a shelf

Figure 3. The position of level ball-green liquid

4. Keep it away from magnetic interference. Loud speakers, hair driers, etc. may have strong magnetic interferences, do not place the alarm near these types of appliances.

5. Keep the internal battery charged. To preserve the battery's life time, make sure that the battery is always charged, even when the alarm is not in use. It takes about 8 hours to charge the battery by plugging in the AC-DC adaptor and about half year for the battery to discharge itself. Therefore, when not using, the alarm should be charged to full level for every half year.

6. The light above the seismograph is the alarm of earthquake; the light below is the alarm of magnetic anomaly. If the light below is flashing and calling, please observe if the compasses are rotating irregularly, and then observe the phenomena such as weather and earthquake clouds, for the magnetic pole will be turbulence when the earthquake is coming.

7. The compass of the seismograph will lose the functions of compass under the constant magnetic fields in the seismograph. It will rotate non-stop only when the magnetic field greatly changes (the vertical magnetic field appears before earthquake). When the alarm occurs, the earthquake magnitude can be judged according to the rotating intensity of the compasses and then trigger the device earlier in advance. This is the difference between this device and the P wave detector.

8. After this device alarms, it should be closed automatically. However, since the mercury inside the device is viscous, the device may be alarming for a long time. At this time, please **shake the device** a little, and then the device will be back to standby mode when the mercury is in the right place.

NOTICE

1. ATI warrants performance of its products for one year to the specifications applicable at the time of sale, except for those being damaged by excessive abuse. Products found not meeting the specifications within one year from the date of sale can be exchanged free of charge.
2. ATI reserves the right to make changes to its products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete.
3. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgment, including those pertaining to warranty, patent infringement, and limitation of liability. Testing and other quality control techniques are utilized to the extent ATI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.
4. Customers are responsible for their applications using ATI components. In order to minimize risks associated with the customers' applications, adequate design and operating safeguards must be provided by the customers to minimize inherent or procedural hazards. ATI assumes no liability for applications assistance or customer product design.
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