JENLOGIX
INDUSTRIAL TECHNOLOGY PARTNER

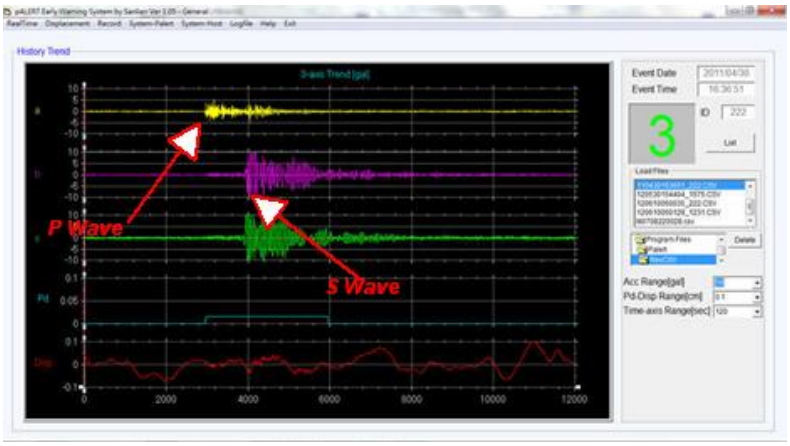
Palert - P Wave Seismic Alarm System

Need those vital seconds to save your systems or your life?

Want warning of an oncoming large earthquake?

Then use the breakthrough technology of the advanced, **cost effective**, Palert system that can give you that warning and the chance to act before the main devastating shock wave arrives. A P-wave of an earthquake is like seeing lightning before hearing the thunder.

The P wave travels faster than the main shock (S) wave. Within 3 seconds, when used as part of a regional Earthquake Early Warning System (EEW), the Palert system can tell you how far away the earthquake is, how big and most importantly how many seconds till it arrives.



This gives you a small but important window to prepare, time at least to open the door, maybe switch off gas etc. then duck and cover. Or best of all it provides time to escape outside.

For key systems this acts as a seismic switch with some warning to allow closure of valves or powering off, saving vital resources that may be needed in the aftermath of a large earthquake.

Alternatively the Palert can be used to protect these key assets. Even without any early warning the Palert can be used as a local Earthquake Detection System to manage local assets

Features

- The Palert detects the P wave and estimates whether the following shockwave is potentially devastating or not, all within 3 seconds.
- As part of a regional EEW, given the P wave travels twice as fast as the main seismic activity (S-Wave), it can estimate the shock wave arrival time. This depends on the epicenter and Palert separation.
- Used locally, or as part of an EEW, and with two seismic switch set points for each digital output plus Modbus TCP connectivity, the Palert allows for switching on or off based on the profile of the imminent quake. *E.g. Open doors for escape routes, shut down utilities valves send audible warning, trigger disaster recovery messages, stop lifts and provide every opportunity to save lives and infrastructure.*
- Earthquake data is also recordable when connected to PC using software provided enabling monitoring of smaller quakes and effect on infrastructure

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Description

Palert is an advanced earthquake P wave alarm detector system from Sanlien in Taiwan and represented by Jenlogix in Oceania. It uses embedded Pd technology developed by Prof. Yih-Min Wu from National Taiwan University who has published many articles on this subject. With over 800 sold in Taiwan alone, it has proven successful and is now supported by the Taiwanese Government (Taiwan has the same number of earthquakes as New Zealand). Sanlien now have installations in New Zealand, India, China, Mexico and Japan.

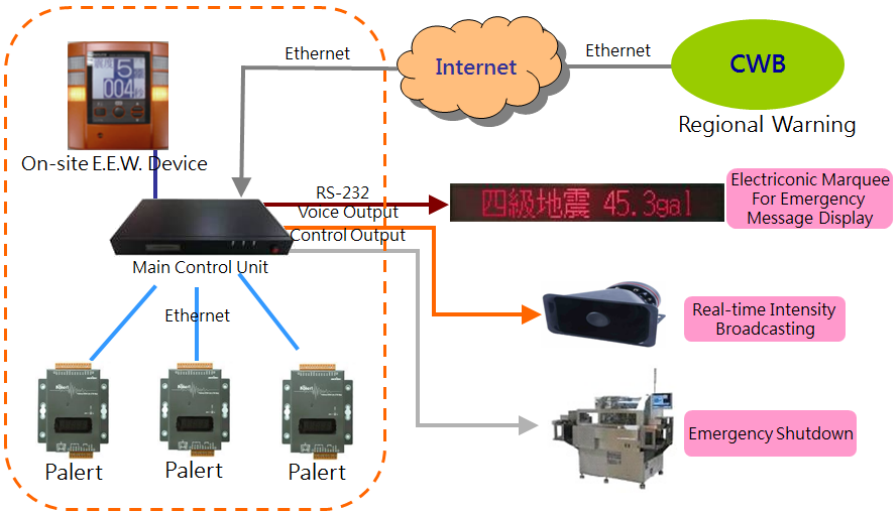
It is designed to reduce earthquake damage by providing as much warning as possible at an affordable cost. The Palert only requires 3 seconds once a P-wave is detected to issue an alarm if it calculates that the following shockwave is likely to be of a significant level to cause damage.

Palert offers four kinds of trigger algorithms:

- Pd - algorithm as developed by Prof. Wu
- PGA stands for Peak Ground Acceleration. Palert offers 10 Hz and 20 Hz low pass filters which are user adjustable to filter out high frequency components in signal generated by non-earthquake vibration.
- Real time displacement calculation which is able to deploy displacement trigger algorithm along “a” axis.
- The conventional STA/LTA trig algorithm is also available in Palert.

Intensity standards of CWB (Central Weather Bureau, Taiwan), MMI (Modified Mercalli Intensity, USA) and China (GB/T-17742-2008) are available and can be shown instantaneously. Other useful earthquake information is stored and ready for retrieving from the Palert. These include trigger time, maximum intensity, maximum acceleration for each component and maximum acceleration of vector. The powerful networking capability features streaming real time data to hosts, automatically connecting up to 2 servers and NTP (Network Time Protocol) time calibration. With these networking functions, Palert is a key front end device for EEW (Earthquake Early Warning) system.

With the PC utility, it is possible to record seismic data for research purposes and to have voice warnings if needed.



Providing two outputs and supporting the industrial communications standard Modbus TCP/RTU, Palert is an ideal product for seismic safety control in numerous applications.

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Palert Specification

Palert is a P wave alarm equipped with MEMS accelerometers for 16 bit output resolution. It is embedded 2 digital outputs for facility protection before or during the earthquake. With Modbus TCP/RTU capabilities, it is very easy to integrate Palert with industrial applications, such as PLC, HMI and SCADA. Up to 3 hosts can be connected to P-alert at the same time.

Accelerometer

Type:	Tri-axial MEMS
Range:	± 2 g (b, c Axes) + 1 g / -3 g (a Axis)
Frequency Response:	0.05~20 Hz
Displacement Frequency Response:	0.075 HPF
Shock:	3000 g 0.5ms 10000 g 0.1ms

Resolution

Output Resolution:	16 Bit

Earthquake Gauge

Algorithm:	Pd, PGA, Displacement, STA/LTA
STA Setting Range:	0.1~100 seconds
LTA Setting Range:	0.1~200 seconds
Event Duration Time:	1~200 seconds

Switch Set-points

Digital Output Numbers:	2
Set-point Range:	1~1960 gal
Contact Type:	Normal Open
Contact Capacity:	60V / 0.6ADC
Hold-On time:	User Define

Power

Supply Voltage:	10~30 VDC
Power (12V):	3.5 W

Input / Output

Modbus RTU:	RS-232 or RS-485 format 19200, N, 8, 1
Modbus TCP:	3 Hosts Simultaneously
Modbus ID:	Default 101 , settable
Modbus function:	Function 3 and 16
Active Connect to TCP Server	Support 2 TCP Servers
Time Calibration	Via NTP or PC Utility
Data Recording	Via Network by PC Utility

Size

Dimension:	125 * 105 * 30 mm
Weight:	450g (without Power and Cable)

Enviroment

Operation Temp.:	-10~60℃
Storage Temp.:	-20~70℃

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