

CAN I GET WARNING OF AN EARTHQUAKE?
CAN I WARN MY STAFF OF IMMINENT SHAKES?
CAN I SHUT DOWN SYSTEMS AUTOMATICALLY?
CAN I STOP PRODUCT OR WASTE ESCAPING?
CAN I PROTECT MY SYSTEMS?
CAN I HELP WARN OTHERS?

THE ANSWER IS YES!

In Taiwan and several other countries, the use of the low cost Palert system provides timely and accurate information enabling an affirmative answer to all these questions.

Background

As a result of the poor quality of information available during the devastating Chi Chi Earthquake (Mg 7.3) at 21/9/1999 in Taiwan, Sanlien decided to develop a cost effective Earthquake Early Warning System (EWS)

As part of this development, Prof. Wu from National Taiwan University developed an algorithm for on-site and regional earthquake early warning using the earthquake "P-Wave" (Fig 1).

In 2007 Sanlien started to cooperate with Prof. Wu on developing the Palert (Earthquake Sensor).

From 2009 National Taiwan University, Academia Sinica, Ministry of Science and Technology of Taiwan and Salien began to build the Earthquake Network.

The P wave propagates 1.77~1.87 times faster than the S wave depending on the soil mechanics.

- P wave propagates 8km/sec
- S wave propagates 4km/sec

If the epicenter is around 200 km. it will take about 50 seconds for the shock wave to arrive.

The Palert device is able to respond to a P wave within 3 seconds and so can be used to trigger alarms or send messages to switch off devices.

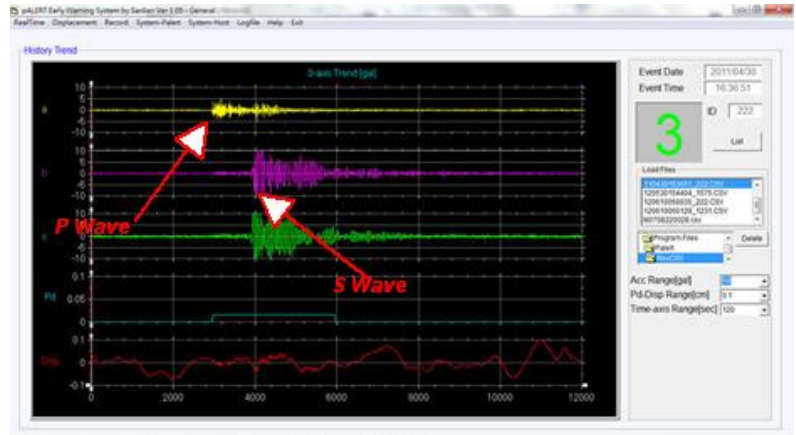


Figure 1 P wave and S wave

Palert Development

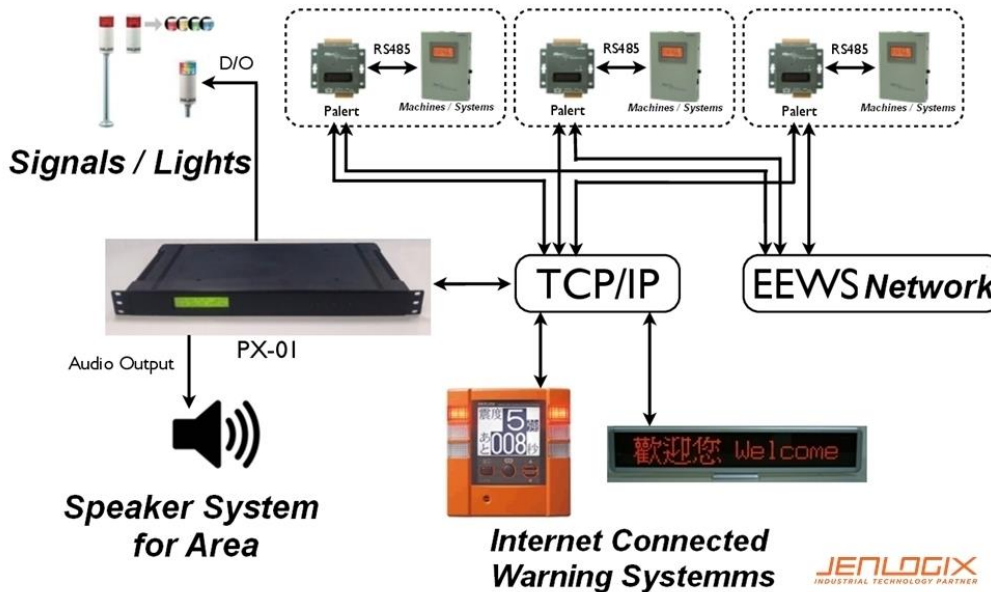
Since the 1990s, the Micro Electro Mechanical Systems (MEMS) accelerometers have been introduced in seismic applications (Holland, 2003) and are cost-saving miniature devices, ideal for recording strong ground motions. The Earthquake Early Warning (EEW) research group at National Taiwan University (NTU) headed by Professor Yih-Min Wu worked with San Lien (a technology corporation) to develop a P-wave alert device named Palert (Fig. 2) that uses MEMS accelerometers for onsite earthquake early warning. The cost of the Palert device is less than 1/10 the cost of traditional strong-motion instruments and can record real-time, three-component acceleration signals.



Figure 2 The Palert Earthquake Early Warning

Local and Regional Warning

Seismic Switch and Earthquake Warning System



Using a local network of Palert and a small computer, the P wave can be detected and alarms or switches activated. There are 2 switch points to enable automating of different responses depending on the predicted size of the shock wave. Even a single Palert can be used to protect vital systems.

The key benefit is automatic alarm and switches at a time when it is possible the staff may be more worried about their own safety

Thus far, over 1000 Palert devices have been installed in China, Indonesia, Mexico, New Zealand, India and Taiwan.

Contact Keith on 021840530 or keith@jenlogix.co.nz for more information