Analog and Digital Seismic Switch

After Fukushima incident it has become a regulatory requirement to have Automatic Seismic Trip System (ASTS) on detection of earthquake. This is designed to scram the reactor upon the occurrence of a seismic event, before turbine trip or other conditions resulting from the seismic disturbance could cause a scram. This early scram could give a lead time between 5 to 20 seconds. ASTS comes under Class IA system and has to meet relevant standard requirements. Since systems available in market were not meeting these requirements, Analog and Digital Seismic Switch technology was indigenously developed and transferred to ECIL. Products installed at KAPPS 3&4.

Features

➢ Two independent relays (Earthquake and Status)

➢ Fail-Safe design (For normal operation relays are in energised state)

➢ On-line testability feature through remote pushbutton and software.

➢ 2 independent Li-ion built-in battery backup up to 10 hours and triggers on full power loss.

➢ Easy installation and maintenance; high precision levelling is not required

➢ Calibration generally not required, can be verified using tilt table and/or Shake table

➢ Serial (RS-232 or RS-485) Interfaces

➢ Intuitive BARC Seismic Switch Configuration software for Windows 7

➢ Designed to meet various IEC, IS regulations

Condition	Earthquake Relay	Status Relay
Earthquake	De-energise for 5 seconds	No Actuation
Complete power loss including battery	De-energise till power restores	De-energise till power restores
Manual confidence test	De-energise for 5 seconds if system healthy	De-energise for 5 seconds if system healthy
Working on battery	No actuation. It will De-energise only on detection of earth quake.	De-energise when battery power is less than 98%
Automatic confidence test pass	No actuation	De-energise for one second
Automatic confidence test fail	De-energise till system reset	De-energise till system reset
Warning condition	No actuation	Repeated actuation in 2 seconds interval.