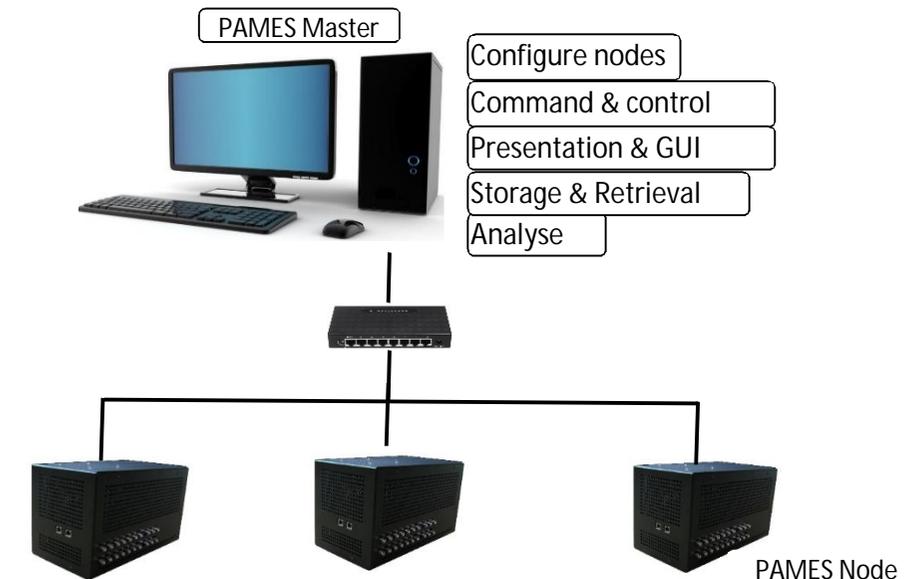


Post-Accident Monitoring of Electrical Systems (PAMES)

PAMES is an automated monitoring system that can periodically scan and assess the health of the power cables in an electrical distribution system and present an overview to the operator to enable timely action before a crippling failure. The system meets following key challenges.

1. In-situ, non-destructive and does not require de-termination of the cable(s) under test.
2. Can work irrespective of the state of energization of the cable.
3. Do not require any modification of the electrical power system physically or functionally or in any way that alters the electrical system from safety or reliability point of view.
4. PAMES nodes are housed in the distribution panels and can test the cores (conductors) of the outgoing feeder cables from the panel one-at-a-time. It generates a diagnostic TDR pulse of suitable design and receive its response (echo) from the cable core (conductor) and can detect anomalies in the insulation by correlating the signals.
5. PAMES master station is a supervisory workstation that presents the health of the cables connected to the PAMES nodes via interactive multi-level GUI.
6. PAMES was validated in a scaled-down electrical power system comprising of two distribution boards – DP-1 with 415V, 50Hz, 3-phase supply, and DP-2 with 220V, 50Hz, 1-phase supply derived from DP-1 by UPS. Two 3-phase blower loads were fed from DP-1 and one 1-phase blower load fed from DP-2 via 60-meter-long cables. Validation was done for all the cables feeding different type of loads.



PAMES Architectural view





PAMES Lab at Reactor Control Division