



Innovative Grid Services

Empowering the future with Smart Grid Innovation

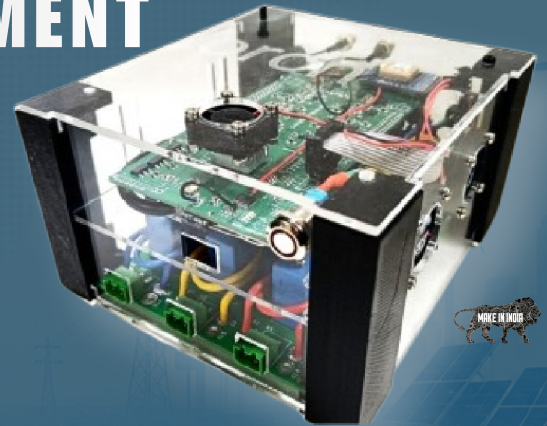


**STARTUP
INCUBATION AND
INNOVATION
CENTRE
IIT KANPUR**

MICRO PHASOR MEASUREMENT UNIT (μ PMU)

ADVANCED SYNCHROPHASOR MONITORING

A high-precision synchrophasor measuring device for real-time monitoring of power networks, delivering time-synchronized measurements for enhanced grid visibility and faster decision-making.



Indian Patent No. 20211034859



Dual Satellite Sync
NAVIC + GPS
Make in India Initiative



**IEEE C37.118
Compliant**



**100 frames per second
High speed reporting rate**



PROBLEM

Existing Distribution System

- **Grid Complexity & Disturbances:** EV and renewable integration introduces disturbances and limits real-time visibility.
- **Data & Synchronization Limitations:** Low reporting rates and lack of precise time sync reduce monitoring accuracy.
- **Reliability Challenges:** Delayed fault detection impacts grid resilience and operational efficiency



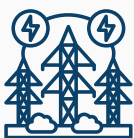
SOLUTION

IG μ PMU Solution

- **Real-Time Grid Visibility:** Time-synchronized, high-fidelity monitoring ensures complete situational awareness.
- **High-Speed & Precision Analytics:** Up to 100 fps data acquisition with ultra-high accuracy (TVE < 0.01%).
- **Intelligent Grid Control:** Advanced analytics and disturbance detection enable proactive decision-making



APPLICATION AREAS



Distribution Network Monitoring
Real-time visibility at feeder and node level



Microgrid Monitoring
Ensure stable operation in islanded and grid modes



Renewable Integration
Monitor Solar/Grid impact on grid stability



Grid Disturbance detection
Detect oscillations and cascading failures early



KEY FEATURES



Real-time synchrophasor monitoring



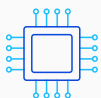
IEEE C37.118 Compliant reporting



High speed data reporting upto 100 frames per second



Dual satellite synchronization NaVIC + GPS



edge processing with System on chip architecture



BENEFITS



Improved grid visibility and situational awareness



Faster fault detection and response



Enhanced grid reliability and stability



Better operational decision making



Scalable and future ready solutions



SYSTEM ARCHITECTURE



POWER GRID



μPMU DEVICE



COMMUNICATION NETWORK



CONTROL CENTER



ANALYTICS PLATFORM



OPERATIONS



Continuously captures voltage, current and frequency



Time-synchronizes data using satellite signals



Better decision making with real-time insights



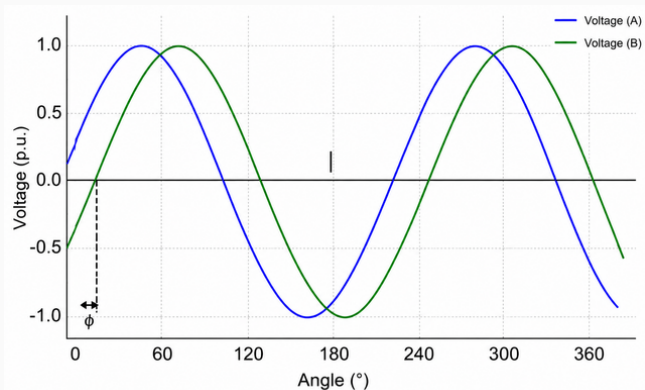
Transmits real-time data to control center



Enables live monitoring and analytics



MICRO PMU VOLTAGE WAVEFORM



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