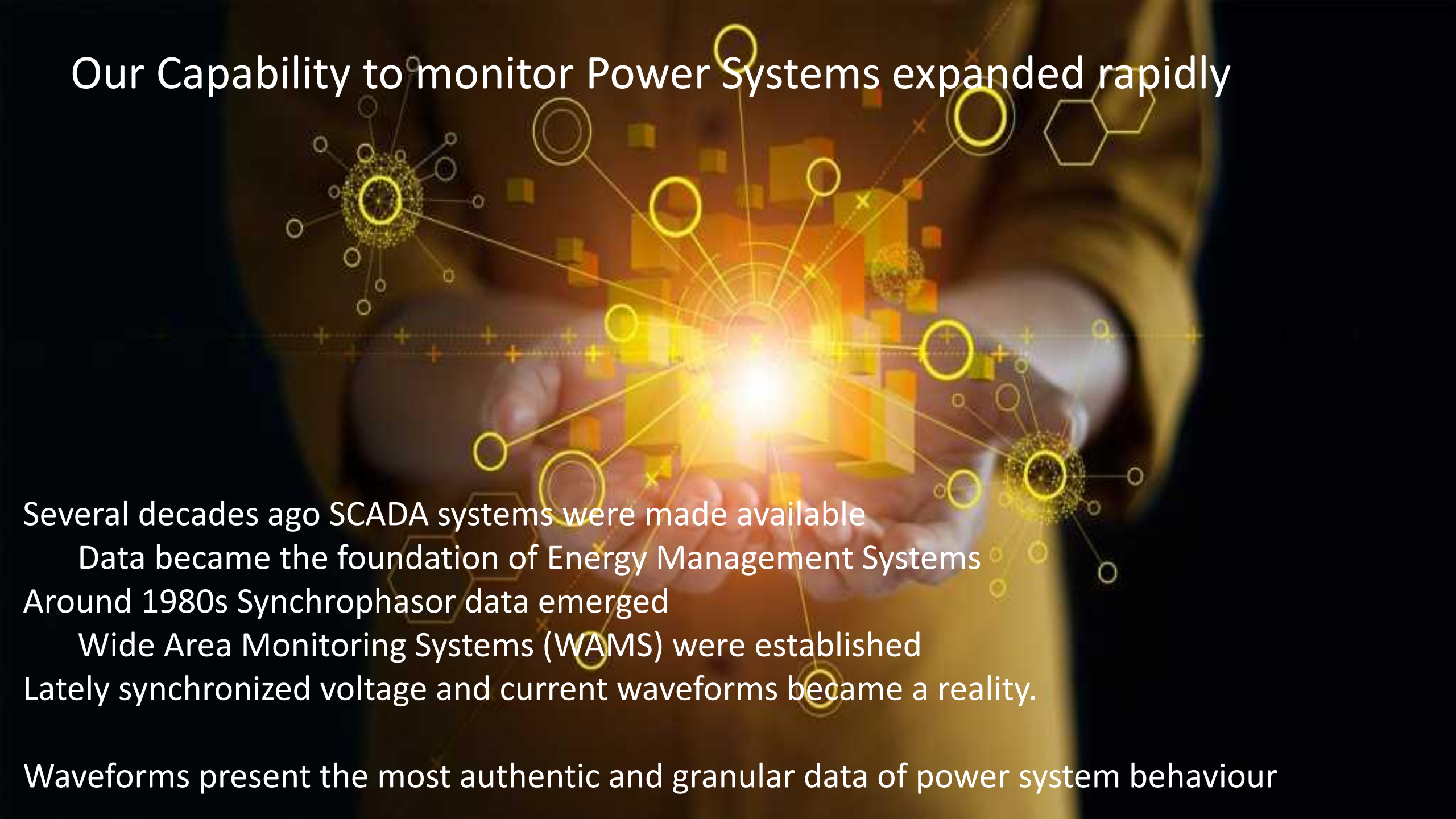
Advanced Grid Monitoring & Control System

By CT LAB

Our Capability to monitor Power Systems expanded rapidly



Several decades ago SCADA systems were made available

Data became the foundation of Energy Management Systems

Around 1980s Synchrophasor data emerged

Wide Area Monitoring Systems (WAMS) were established

Lately synchronized voltage and current waveforms became a reality.

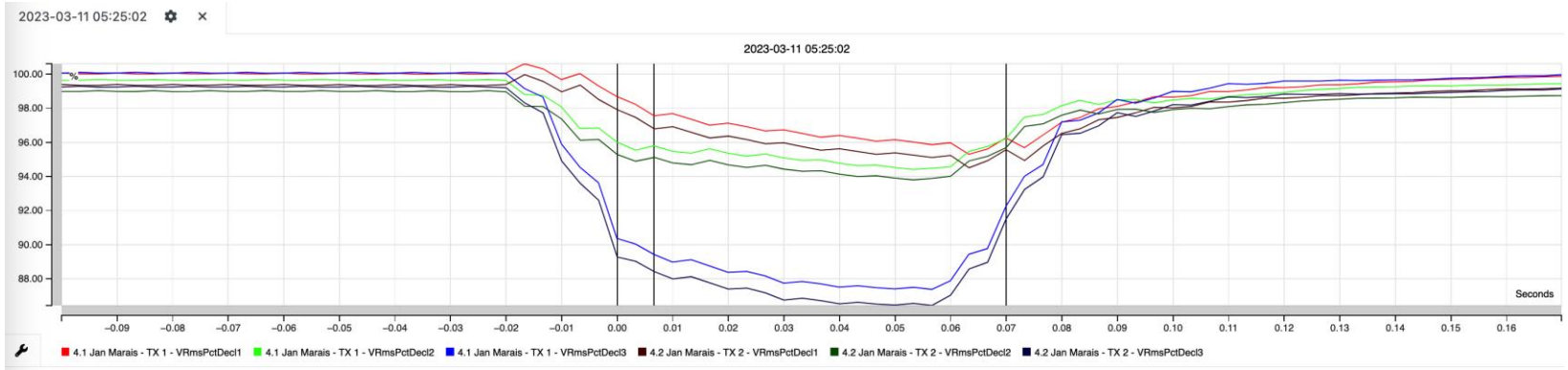
Waveforms present the most authentic and granular data of power system behaviour

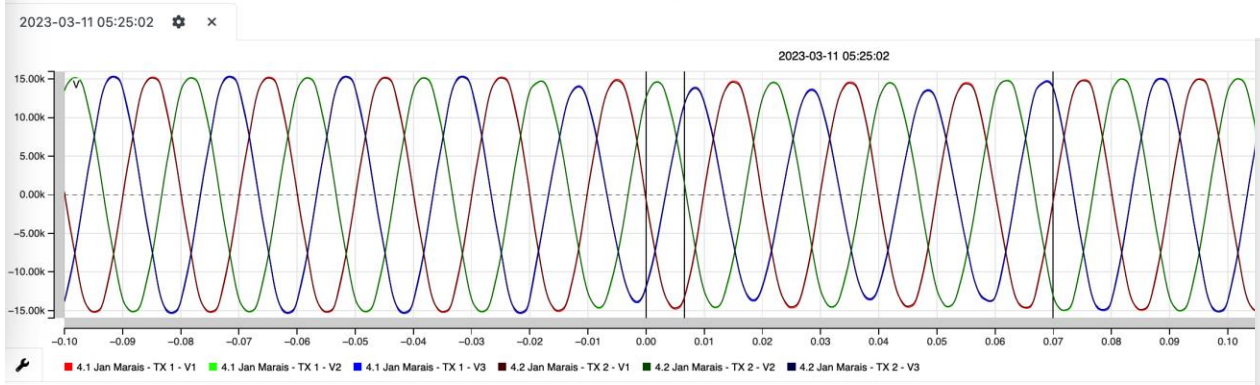
There are at least three industry trends driving the need for waveform data.

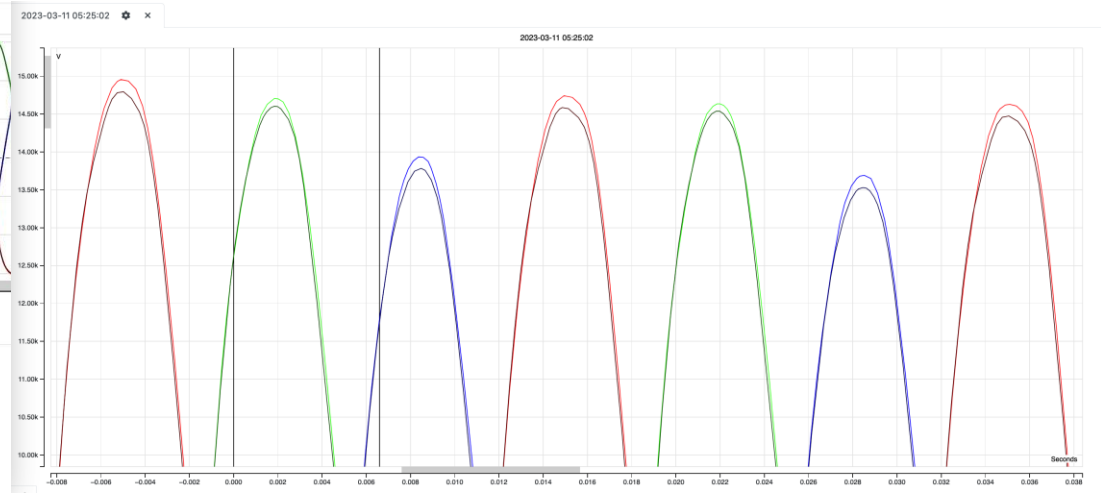
- Increased adoption of power electronic devices
- Modern power systems possess more complex dynamic responses
- Online condition monitoring of power apparatuses is gaining significant attention

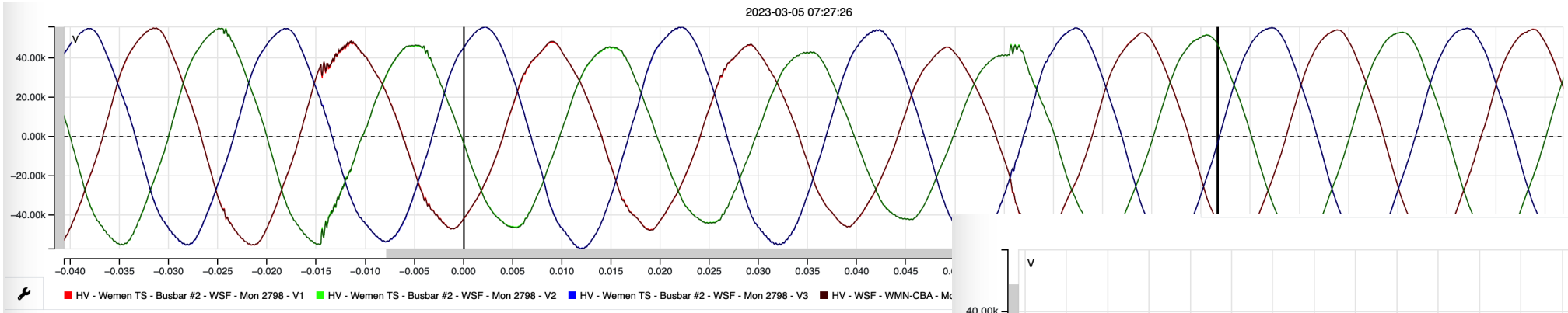
- Waveform data are often collected from multiple locations within a system.
- Fortunately, devices that can record waveforms with precision timestamps are already available.
- Thus, synchronized analysis of multiple waveforms over a wide area is within our reach.

SynchroWaves





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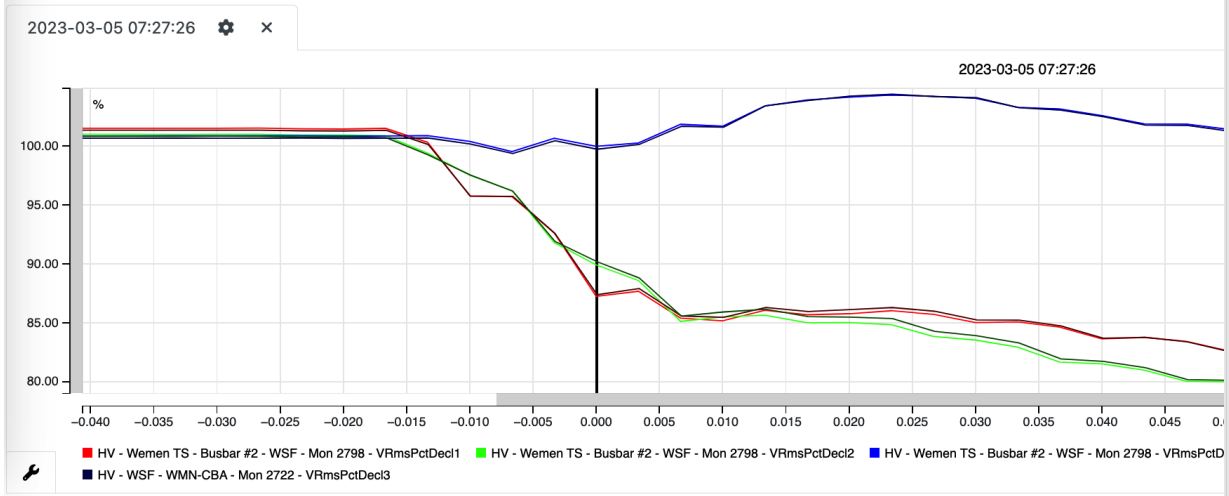
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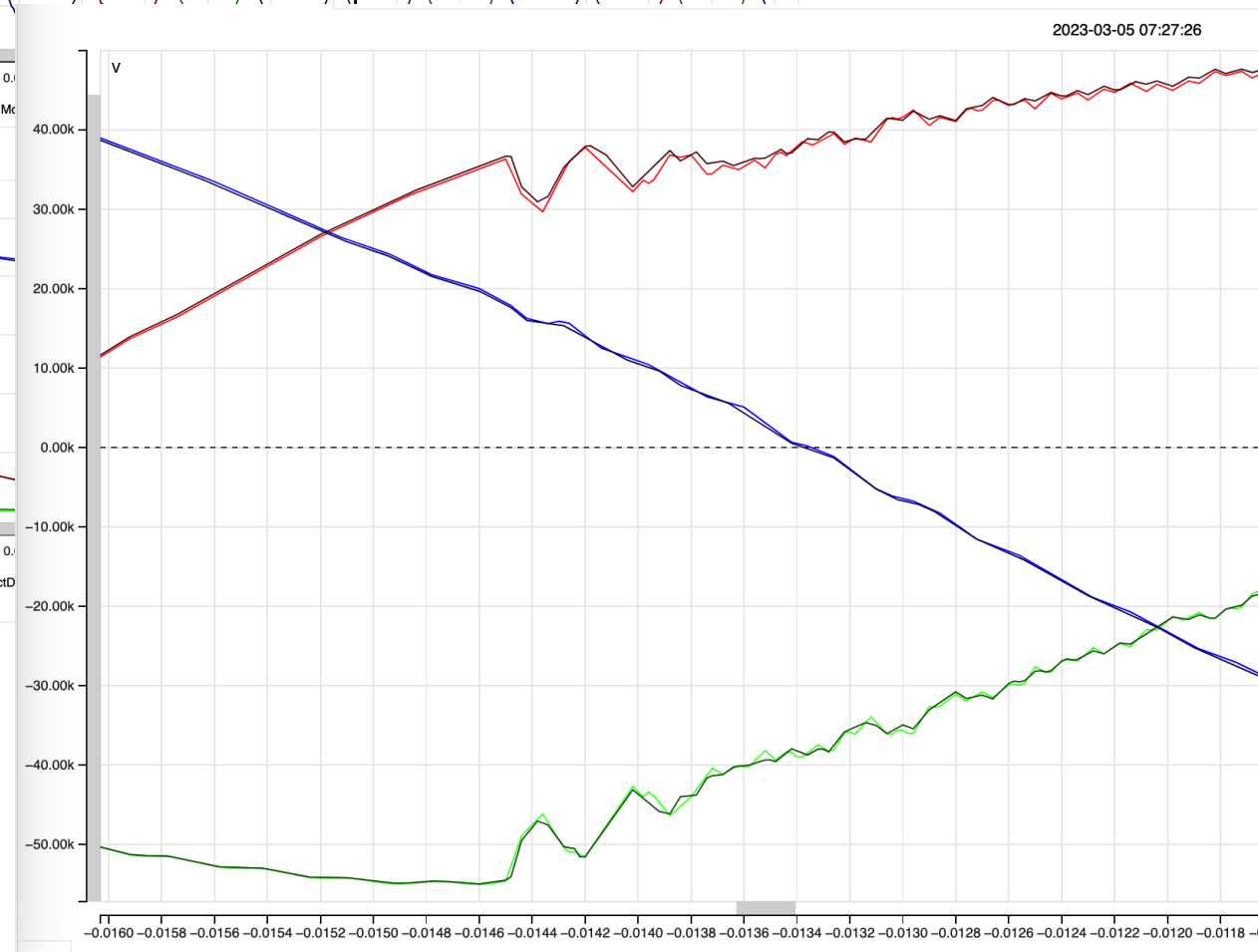
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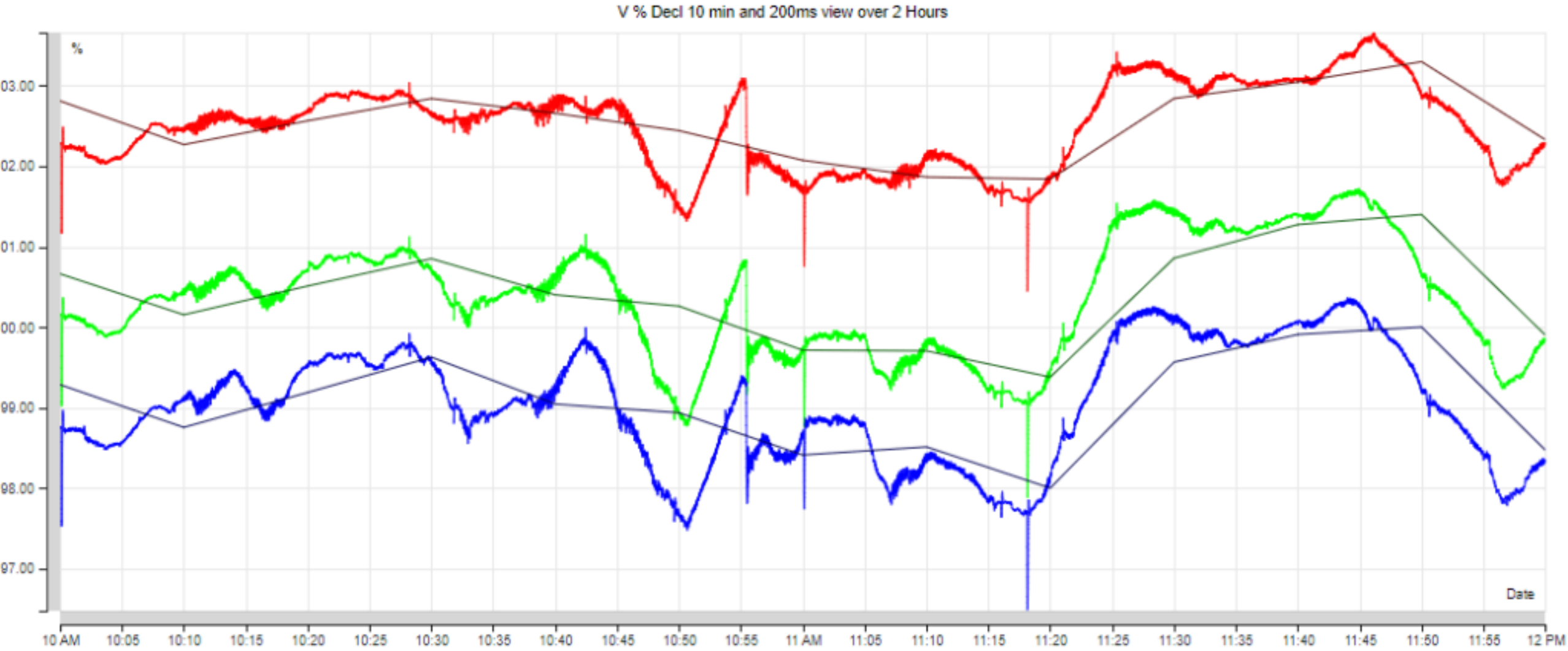
Higher Speed Data



Vecto System

Advanced, distributed, time synchronised multifunction monitoring & control system for electrical networks

- Licence Free Fault Tolerant Big Data Platform
  - Developed from ground up to support thousands of permanently connected recording devices & hundreds of simultaneously connected users
- Permanently Online”
  - Data is accessible in near real-time
- Permanently Clock Synchronised
  - Within ±100ns from absolute time
- Support data from 3rd party devices

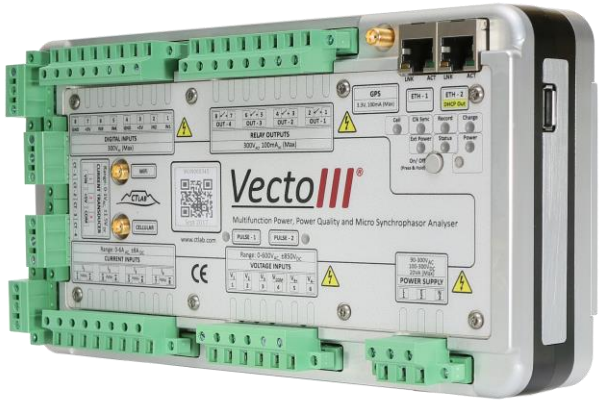
bsi. ISO 9001 Quality Management

FM637314

- High Availability System
- Encrypted Communication
- Cyber-secure
- Exploits EDGE Computing

Scope of VECTO 3

- Network Automation & Control
  - PMU Data Streaming
  - SCADA Protocols
  - Digital IO
  - On-Board Edge Computing
- Network Stability
  - Sub- & Super-Harmonic Spectrum
- Power Freq Load Profile & Billing
- Power Quality
- Higher Harmonics
- Prevailing Phasors
- Supra Harmonics
- Hyperwaves (< 5MHz)



Scope of VECTO GRID OS

Core Functionalities

- Event & Trend Browsers
- Alarming & Notifications
- Measurement Campaigns
- Grouping of events
- Fleet Management
- Reporting & Dashboards
- Combined Billing
- TOU Tariffs …

Current & Future Applications

- Frequency Control Ancillary Services (Australian)
- Virtual Power Station
- Network Model Development & Verification
- Grid Compliance Assessments
- Breaker condition Monitoring
- Distance to Fault

The VECTO System was built on SynchroWaves.

The system supports the complete spectrum of grid monitoring, grid stability, automation & control applications.

With more than a decade of experience in synchronised recording, VECTO System is pioneering the way towards a stable transformed grid.


Thank
You