PQMS –
Power Quality Monitoring System: Improve Power Systems Through IEDs

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What is Power Quality ?

- Changes in electric power supply that may cause equipment to fail, misoperate, or degrade.

Noisy transformers

Overheating

Blown fuses

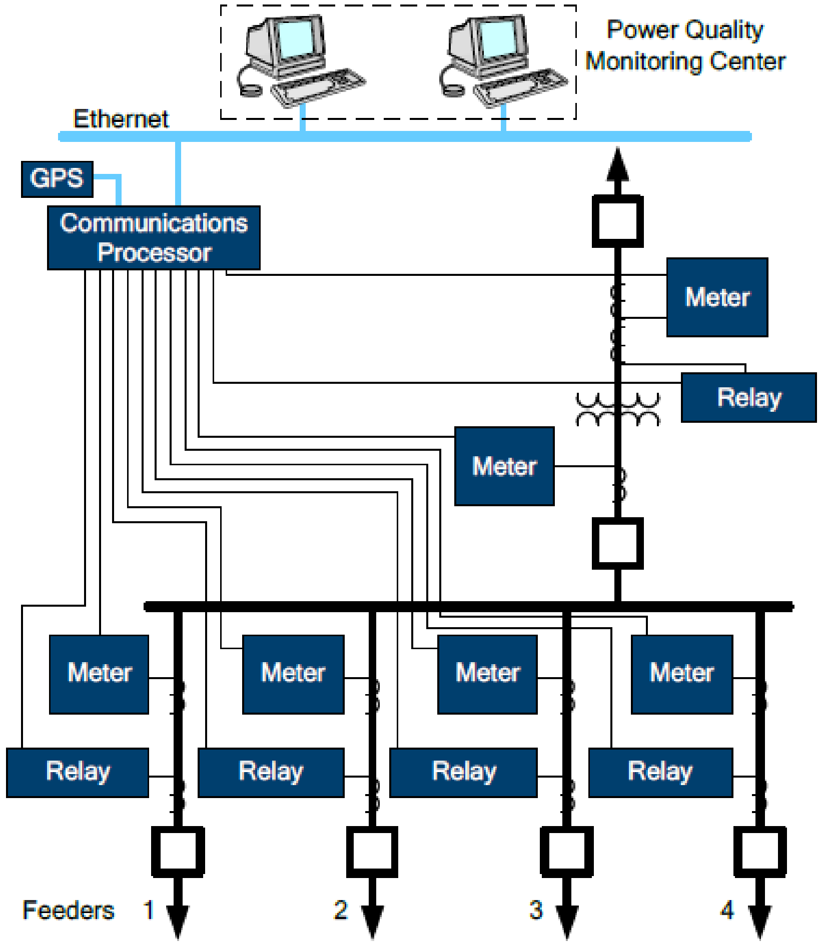
Introduction-PQMS

- Due to increase in Electrical Loads
- More serious the disturbance, Greater the interest
- Different kinds of Disturbances

Power Quality Monitoring System

- Digital Multimeters
- IEDs distributed throughout the system
    - Meters
    - Relays
    - Communication processors
    - Ethernet Network
    - Software
    - Visualization and recording
- Centralizes and structures the information from various parts of system.

Typical PQMS System



Digital Multimeters

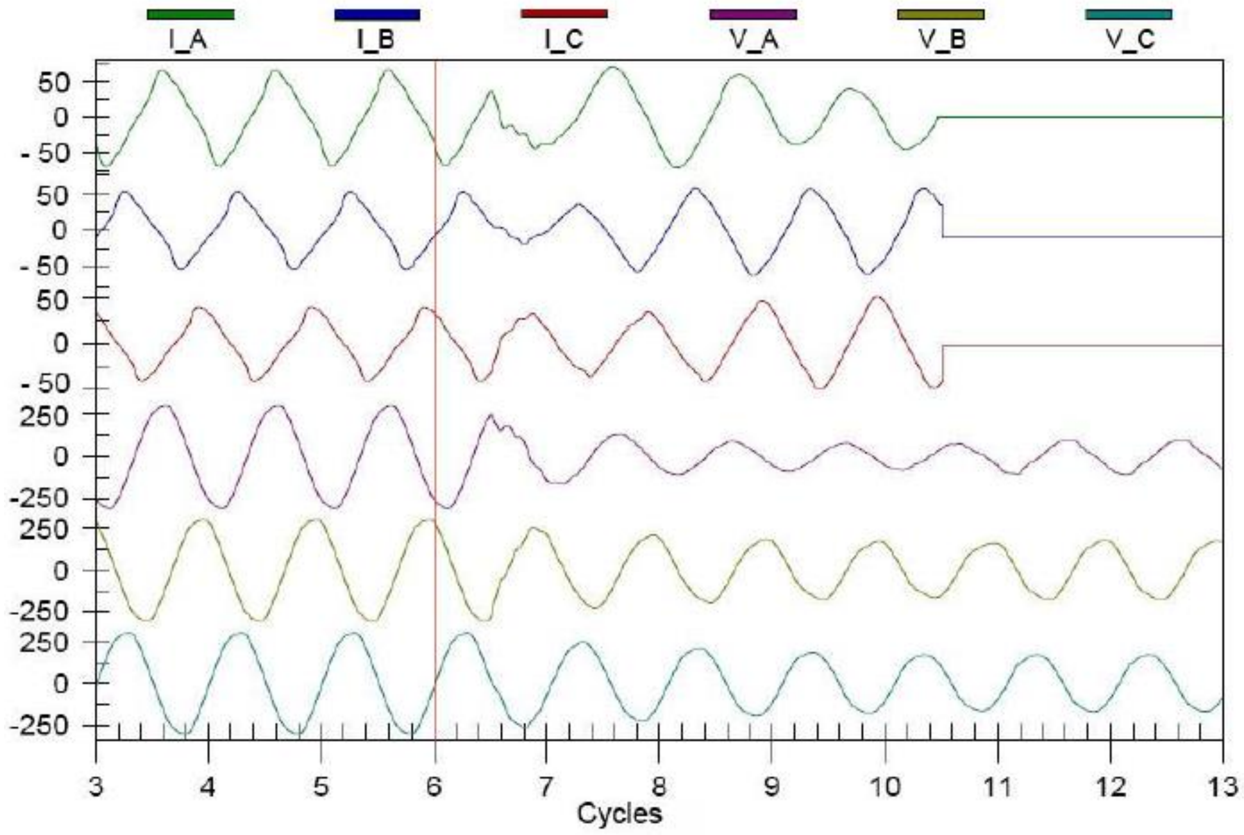
- True RMS Measurements- Upto 50^{th} Harmonics
- Inclusion of New measurement quantities
  - Harmonic distortion
  - Power Distortion
  - K-factor
  - Peak factor/ Crest factor
  - Voltage Unbalance
  - Voltage Sag Swell and Interruption
- Installation for relatively long periods

Requirements of PQMS

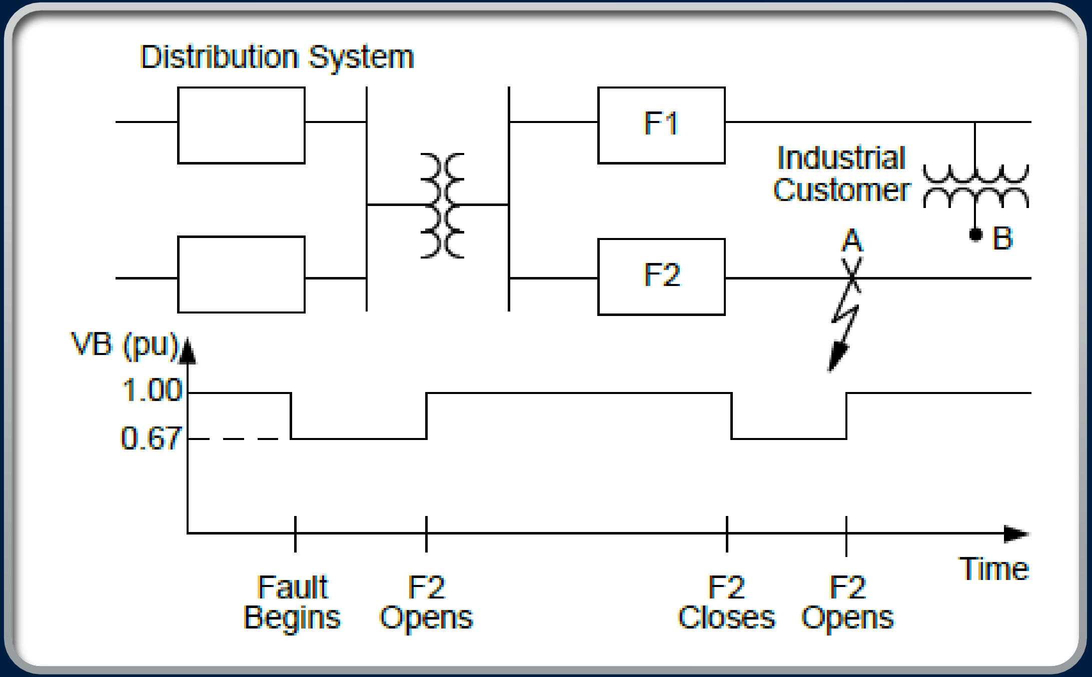
- RMS Operational and Demand metering
  - High accuracy metering
- Revenue Metering
  - 0.2 accuracy
- Power Quality
  - IEC 61000-4-30
- Control Functions
  - For triggering or controlling Capacitor Banks, Transformers. Harmonic filters etc.

Disturbance Monitoring

- Voltage Sag Swell and Interruption



Disturbance Monitoring



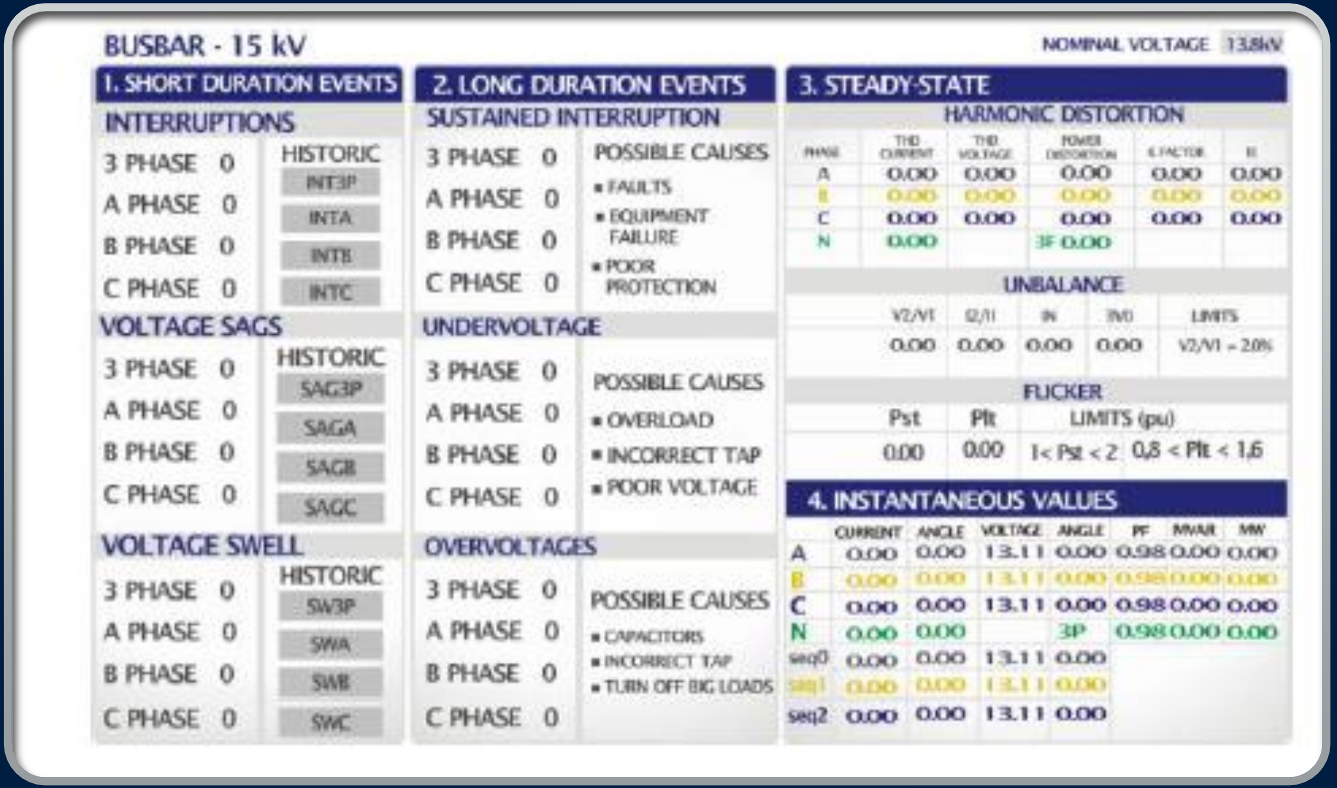
- Determine the origin of faults

Capabilities of PQMS

- Identify disturbances
- Determining the cause of problem
- Distinguish a Power outage and a Voltage Sag
- Provide Data for Equipment specification
- Verify protection settings
- Determine the use of Power conditioning Equipments.

Typical PQMS Software

- Electrical Quantities
- Alarms
- Event records\
- Waveform Visualization
- Access to all IEDs
- Sharing data with other systems



Conclusion

- Innumerable Benefits – Better Power Quality
- Reduced Losses and Interruptions
- Specific Monitoring for customers
- Improved monitoring of factors that has Negative Impact on system
- Detect Disturbances
- Optimization of Distribution Equipment

Thank You !!