

Protection Solutions and Power Monitoring

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Power Monitoring and Control



Agenda

- Digital Protection Relay product line
- Solution for a full Power Monitoring and Control system
- Success Stories

Sepam Network Protection for Your Peace of Mind



- Worldwide presence with technical assistance around the globe
- Over 30 years of experience in multi-functional relay design
- Installed base of over 400,000 Sepam relays in over 90 countries
- Reliability is built-in with quality at every step, from design on through to operation:
 - Design based on dependability studies and complying with the functional requirements of standard IEC 61508 for functional safety
 - development and production certified ISO 9001
 - environment-friendly production, certified ISO 14001
 - service quality ensured by decentralized logistics and support
 - compliance with international IEC standards and local certification
 - compliance with applicable ANSI C37 standard, UL 508 standard, CSA C22

Digital Protection Relay Range

- ✓ *Protection*
- ✓ *Control and monitoring*
- ✓ *Metering*
- ✓ *Diagnosis*
- ✓ *Communication*



Sepam series 20:
simple solutions
for common applications



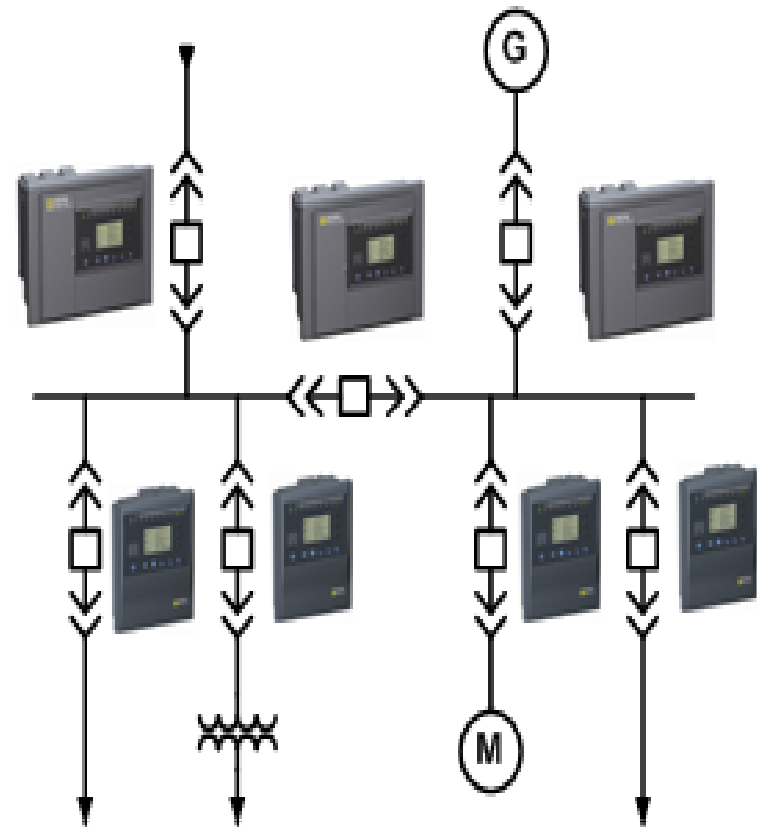
Sepam series 40:
high-performing solutions
for demanding applications



Sepam series 80:
intelligent solutions for high-
end, **customized** and critical
applications

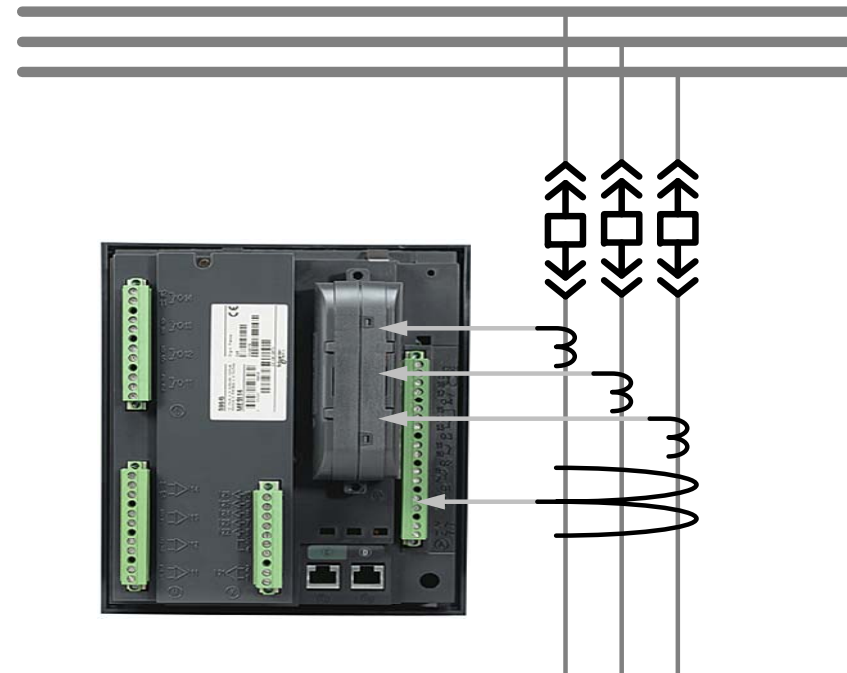
Sepam Solutions For Each Application

- Substation application
- Bus application
- Transformer application
- Motor application
- Generator application
- Capacitor application
- Automatic transfer application



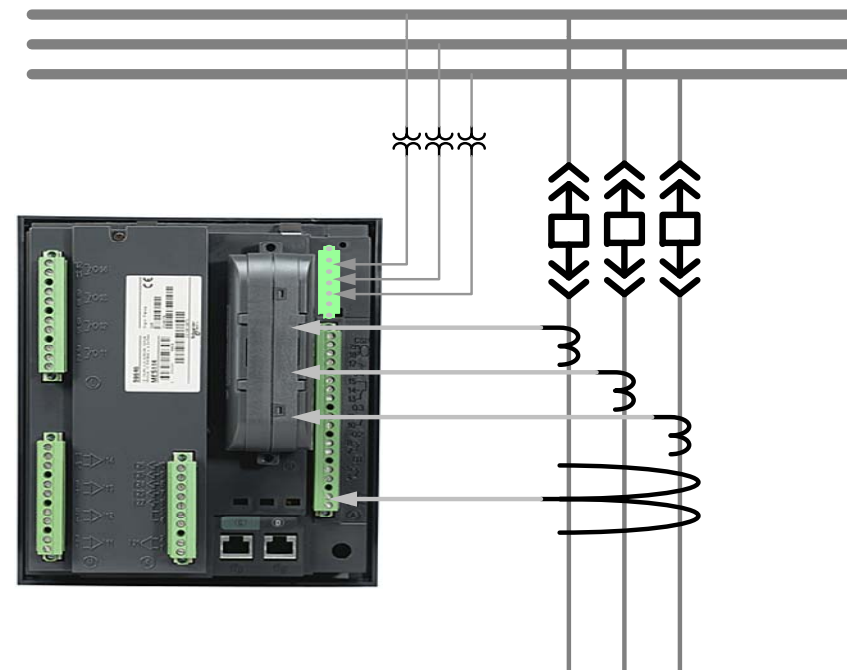
Sepam Series 20

- Current or voltage metering according to the application
- 10 logic inputs / 8 relay outputs
- 1 communication port (Modbus RTU, DNP3, IEC870-5-103, IEC61850)
- 8 temperature probe inputs
- Control Power 24-250Vdc, 110/240Vac



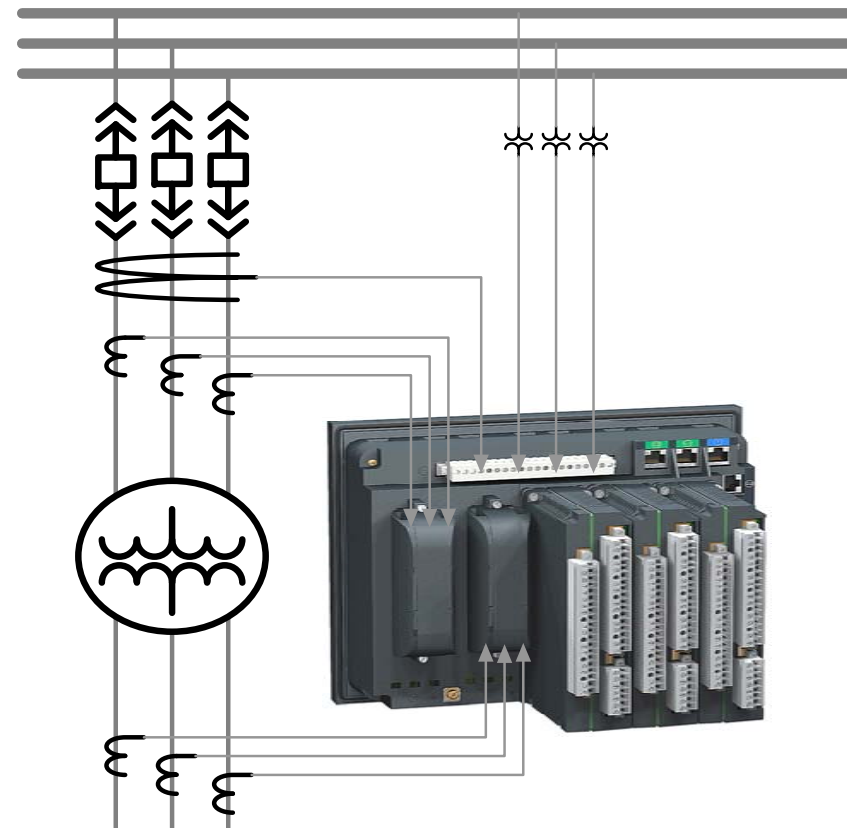
Sepam Series 40

- Current and voltage metering for all applications:
 - all measures available
 - directional protections
- 10 logic inputs / 8 relay outputs
- Logical equation editor
- 1 communication port (Modbus RTU, DNP3, IEC870-5-103, IEC61850)
- 16 temperature probe inputs
- Control Power 24-250Vdc, 110/240Vac



Sepam Series 80

- Multiple metering:
 - all measures available
 - directional and differential protections
- 42 logic inputs / 23 relay outputs
- 2 communication port (Modbus RTU, DNP3, IEC870-5-103, IEC61850)
- 16 temperature probe inputs
- Memory cartridge and backups
- Control Power 24-250Vdc
- Logical equation editor or Ladder logic Logipam software

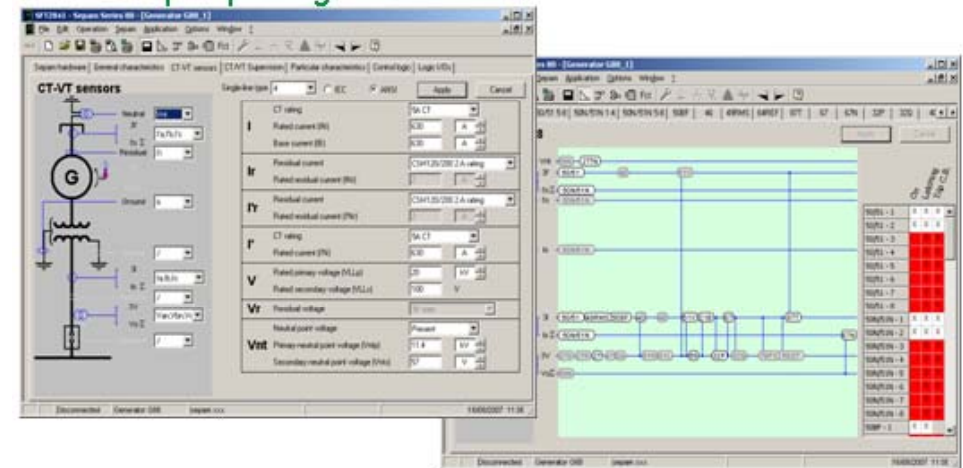


Full Medium Voltage Substation Monitoring

- Integration in Power Monitoring software
 - Supported in ION:E 5.6 as optional device type
 - Full support in ION:E 6.0 (1Q09)
- All Sepam Metering functions are directly embedded in our Powerlogic software
- Alarms are scanned and combined in the Software Event Log
- Able to monitor the I/O + Control logic capability of Sepam in order to monitor Circuit Breaker status
- Integration to industrial and commercial network management system
 - Modbus protocol & Modbus TCP/IP

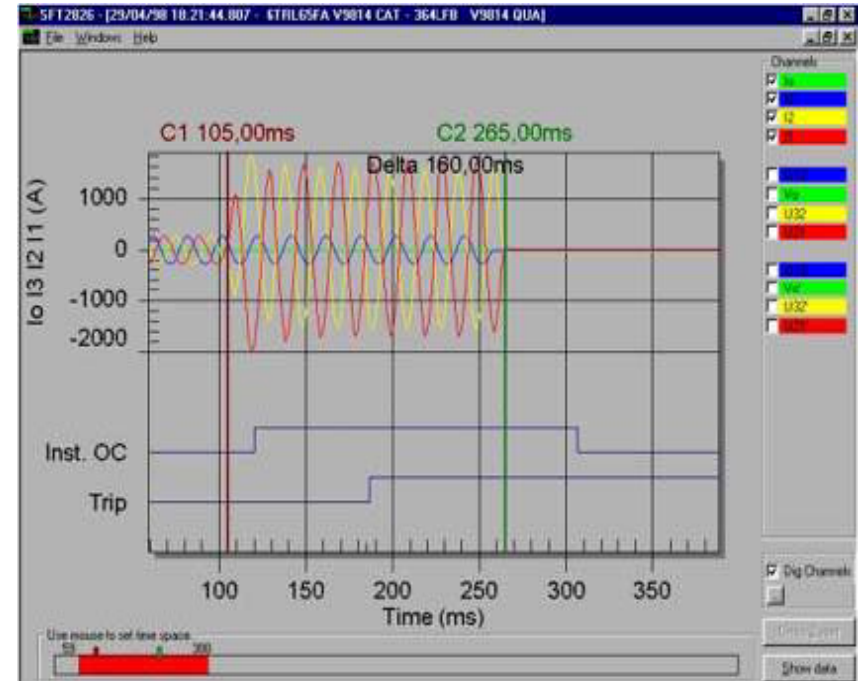
Powerful software configuration tool (SFT2841)

- One software tool for all Sepam relays
- 3 operating modes
 - unconnected
 - connected to Sepam
 - communication network
- Ergonomically designed to guide Sepam setup
- On-line help
 - To derive maximum benefit from your Sepam digital relay!
- Advance graphical assistance
- Professional report printing



Disturbance Recording Capabilities

- Disturbance recording
 - 1 to 19 records in COMTRADE format
 - max. memory: 20s
 - max. record: 10s
 - 36 max samples/period
- Phase unbalance
- Tripping currents
- Alarm history
- Tripping context



Case studies

- Chemical
- Shipyard
- Petrochemical
- Theme Park

Chemical

- Project
 - KCC DaeJook Silicon in Korea(2006)



- Application
 - Electric Network Protection
 - Power & Cost Allocation Monitoring

- Products used
 - 62x Sepam
 - 1x ION 7330, 97x ION 6200



- Customer Requirements
 - Reliable digital protection relay
 - Highly cost effective performance
 - Accurate cost allocation monitoring
 - System Integration for digital protection relay & digital meter

Chemical

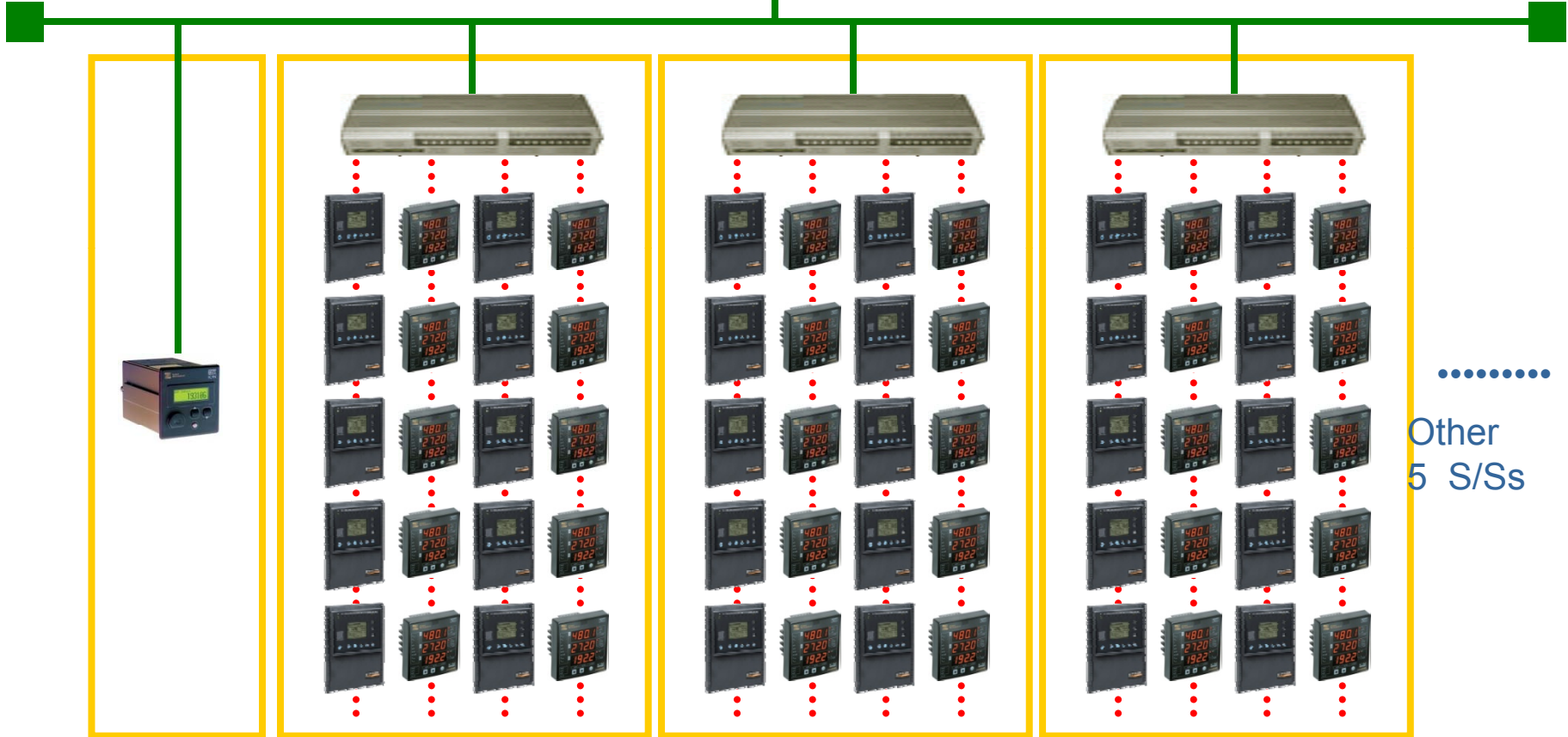
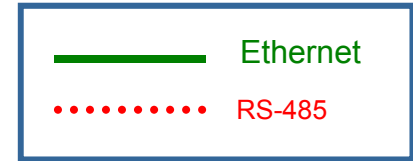
- Sepam + ION installation pictures



■ System Configuration



PMS + Demand Control



Demand Control ION 7330

S/S #1
(Sepam +ION+MB Gateway)

S/S #2
(Sepam +ION+MB Gateway)

S/S #3
(Sepam +ION+MB Gateway)

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Other
5 S/Ss

Shipyard

- Project

- Sungdong Shipbuilding & Marine Engineering (2007)
154 kV S/S Power Management System



- Application

- Electric Network Protection
- PQ/Power Monitoring System

- Products Installed

- 19x Sepam S40,
- ION 7650 : 2, ION 7550 : 12, ION 6200 : 2 sets w/ ION E.



- Customer Requirements

- Reliable digital protection relay
- PQMS/PMS solution to identify unknown reason accidents
- System Integration for digital meters & protection relays

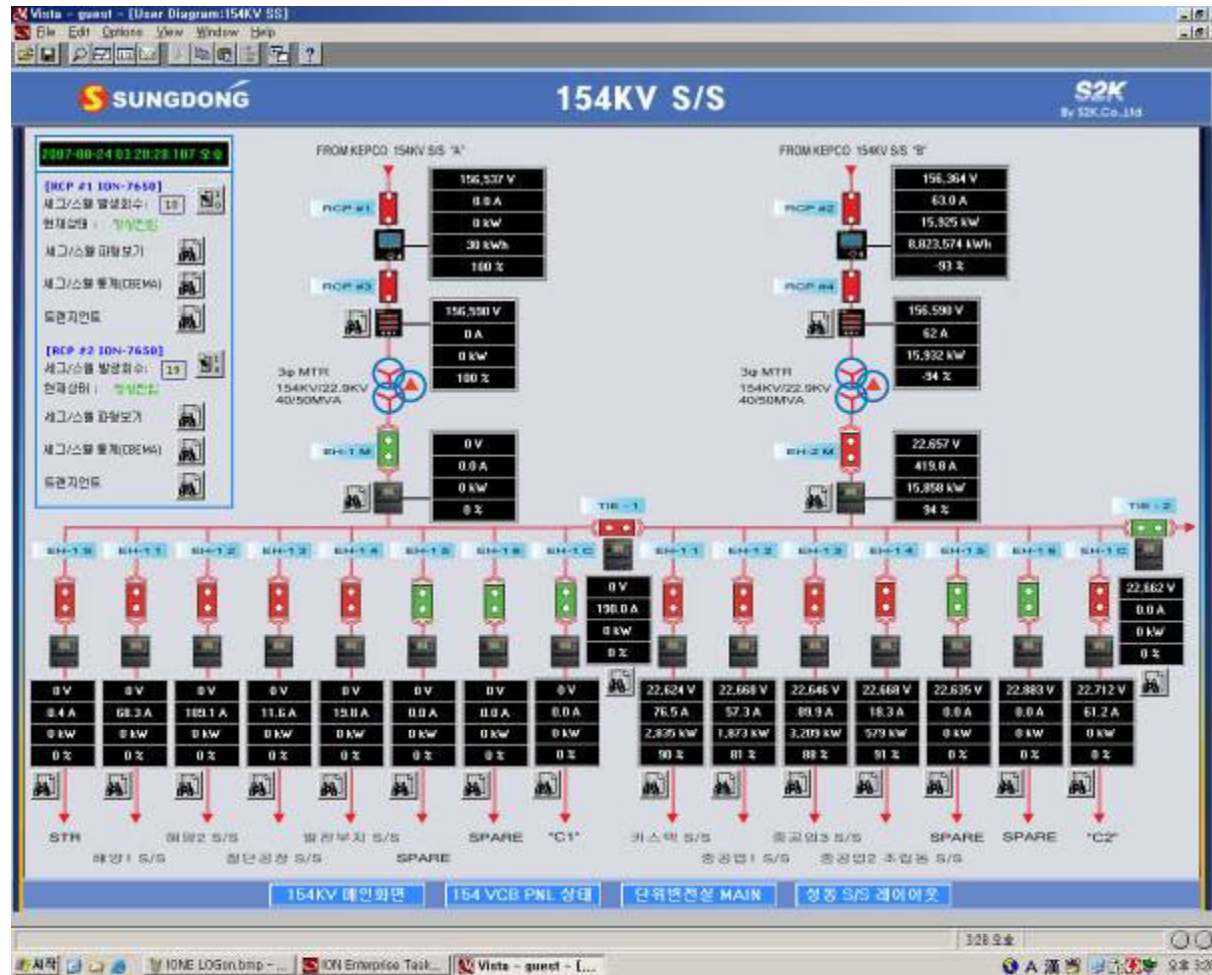
Shipyard

- Sepam & ION installation pictures



Shipyard

- PQ/PMS monitoring screens of ION Enterprise S/W



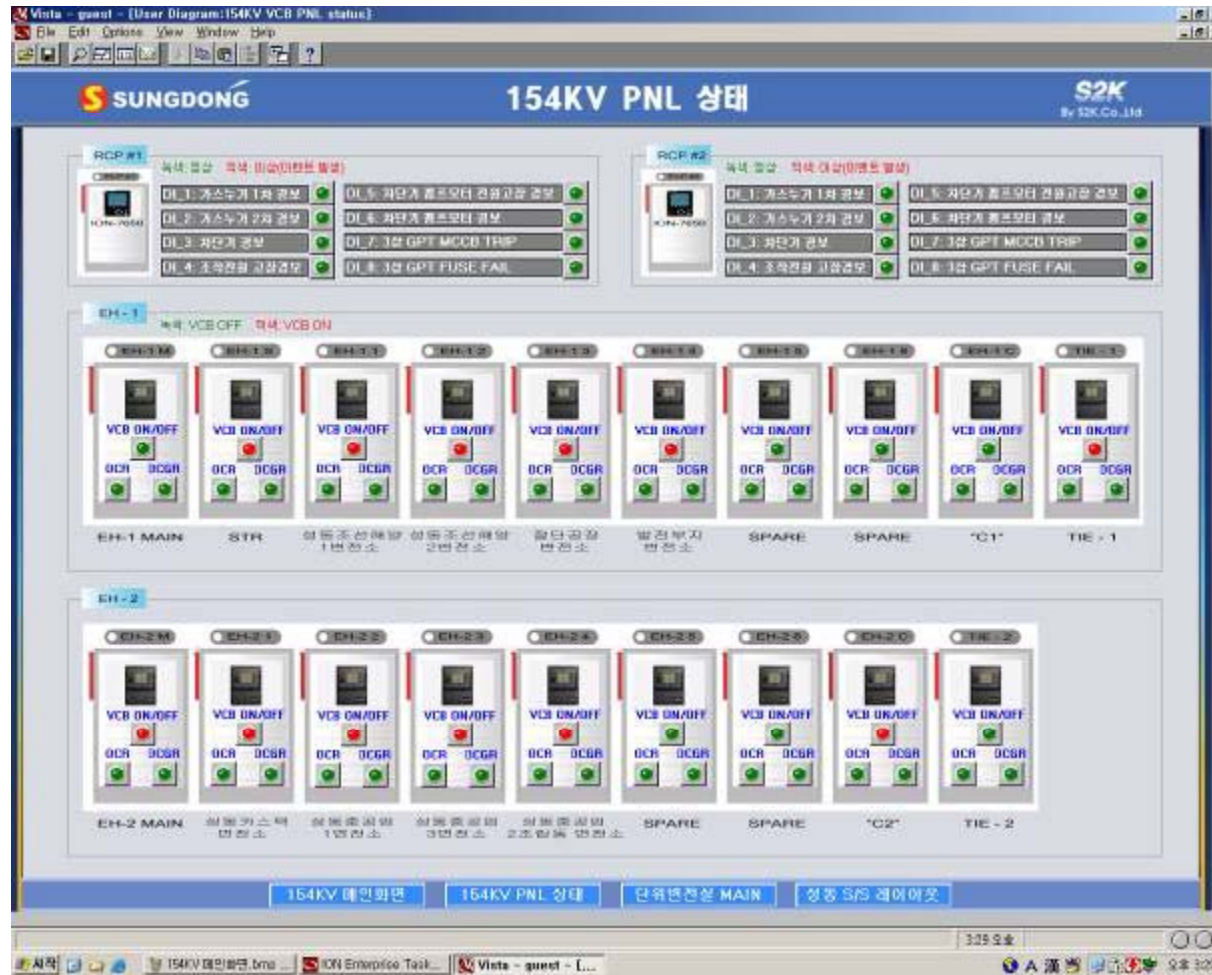
Shipyard

■ PQ/PMS monitoring screens of ION Enterprise S/W

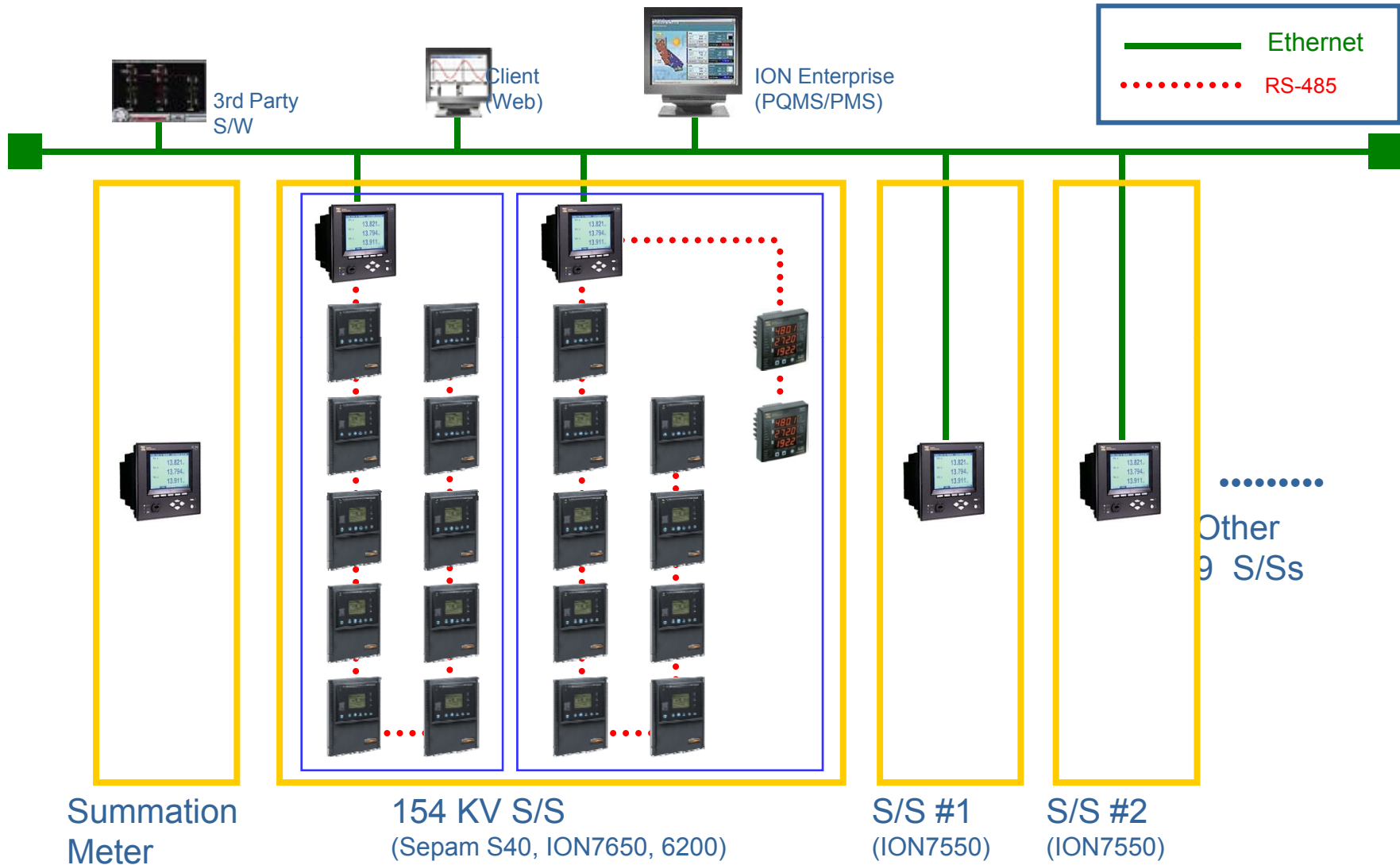


Shipyards

■ PQ/PMS monitoring screens of ION Enterprise S/W



■ System Configuration



Petrochemical (Sejong : ex-PL SI)

- Project

- KP Chemical in Korea(MEX no.2 / PIA)(2007)

- Application

- Electric Network Protection(Retrofit)
- System Integration for Power Monitoring



- Products Used

- Sepam : 60
- CM4000T : 4, PM 850 : 7 with SMS S/W

- Customer Requirements

- Reliable digital protection relay
- Highly cost effective performance
- System Integration with newly installed protection relays & existing legacy digital meters



Theme Park – Before project



Theme Park – After



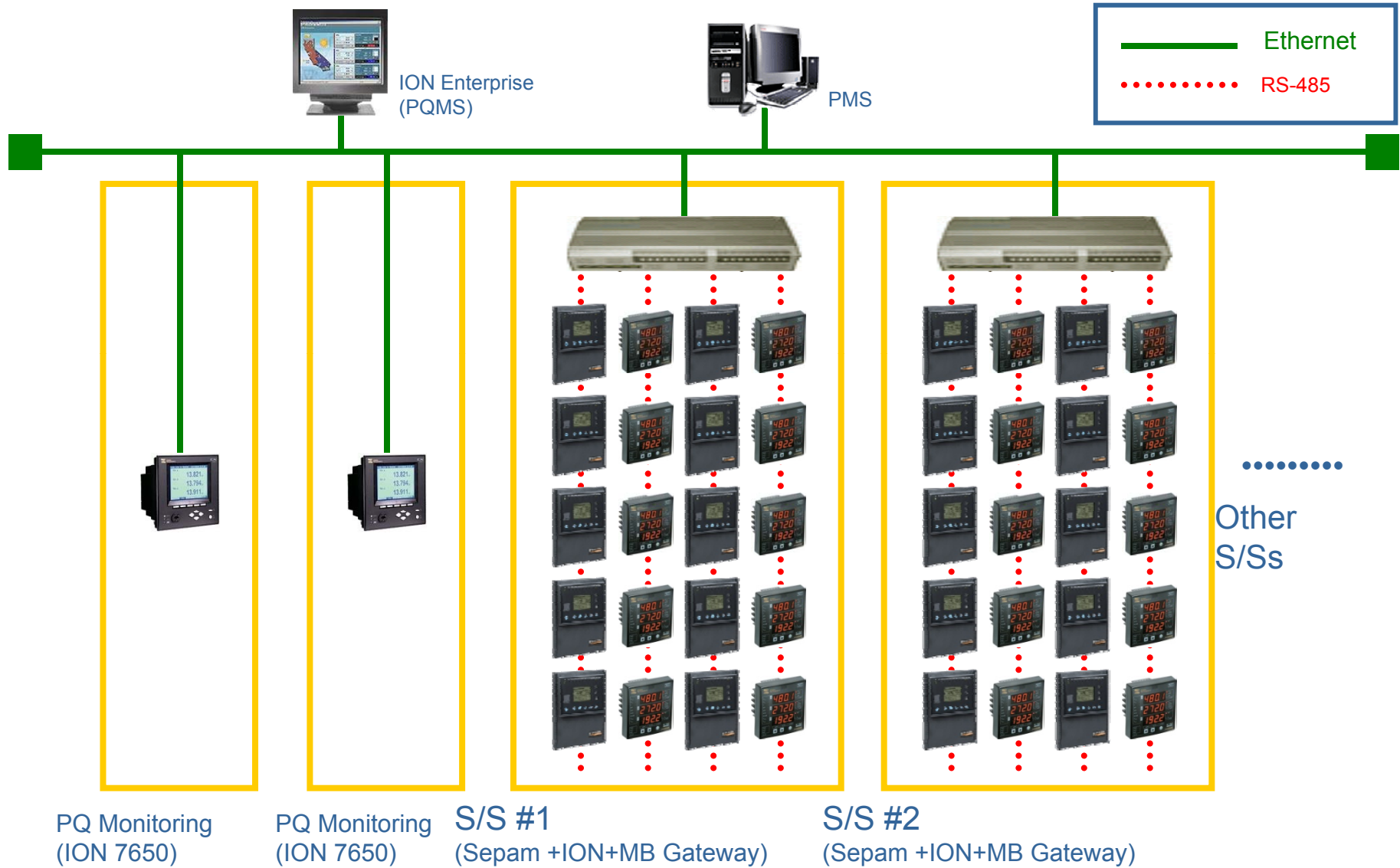
Theme Park – Control Room Before



Theme Park – Control Room After



■ System Configuration



For further information on PowerLogic Systems



Please visit www.powerlogic.com