Triconex Nuclear Main Steam Turbine Generator control – Taiwan Maanshan Nuclear

전일영 / 인벤시스 APAC
Invensys Operations Management

TRICONEX Nuclear Main Steam Turbine Generator Control – Taiwan Maanshan Nuclear

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Outline

1. TRICONEX TMR Hardware and Software
2. MSTG/FWPT Control Upgrade
3. Application Note
1 TRICONEX Hardware and Software

TRICONEX Tricon Control System

- Emergency shutdown (ESD)
- Turbine control (TMC)
- Boiler management (BMS)
- Offshore fire & gas protection (F&G)
- Nuclear
Triple Modular Redundancy (TMR)

- Strong System Diagnostics
- On-line Module Replacement
- No single point of failure

Invensys Turbomachinery Control Solutions

- High Speed Event Logger
- Performance Monitor
- Human Machine Interface
- OST Hydraulic Block
- Overspeed Trip Electronics
- Compressor Controls
- Turbine Controls
- Generator Controls
- Mechanical Retrofits
- Dynamic Simulation

Integrated Turbine Compressor Control (ITCC)
Integrated Turbine Generator Control (ITGC)

TriLogger
ARPM
Wonderware Intouch
Quadvoter
Trident (TMR)
TS3000 (Tricon/Trident TMR)
TS3000 (Tricon/Trident TMR)
TS3000 (Tricon/Trident TMR)

Dynsim/Trisim
TriStation 1131/Engineering and Design

- CAD Like Program
- Market Proven Function
- Emulation & User build block
- Engineering Analysis
- Detail Engineering Design
- Wide range design

2 MSTG and FWPT Control Upgrade
Taiwan Maanshan Overview

- Number of Unit: TWO
- Site Location: Herong Chuen, Taiwan
- Reactor Type: Pressurized Water Reactor (PWR)
- Net Output: 951 MWe
- Operable, Initial criticality: 03/1984
- Commercial start: 07/1984
- Utility: Taiwan Power Co.
- Reactor Supplier: Westinghouse Electric Corp.
- Steam Generator Supplier: General Electric Co.
- Architecture: Bechtel Corp
- Construction: Taiwan Power Co.

- Twin plant in Korea: Gori 3/4 and Youngwang ½

- Major Scope of Supply:
  - TWO EHC Upgrade/Trip Block/VMS etc for MSTG
  - SIX FWPT Upgrade/Trip Block/LVDT/OST
Trident TMR Overspeed Protection

- Same TMR Architecture
- Application as an Overspeed Protection
- Max IO limited to around 800 point
- Small & Medium size application
- TRI-GP released to market with same specification with SIL-2 Level certification

3 Application Note
Wonderware InTouch™ ArchestrA HMI Platform – Overview/Main Page

Wonderware InTouch™ ArchestrA HMI Platform – Lube Oil/Valve Drive Test/Monitor
End of Slides.
Thank you.