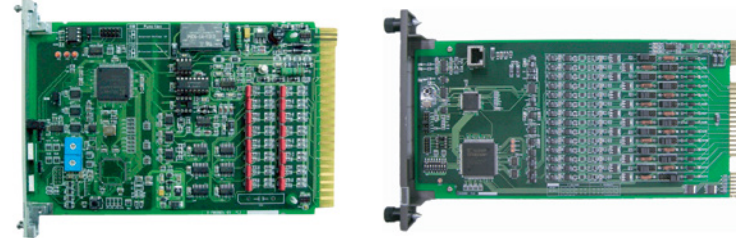# III. I & C

A. DCS

1 Compatible DCS IO Module

- Compatile with ABB INFI-90, Procontrol P-13, GE Mark-Ⅵ TMR IO Module
- Performance test certification(Korea Testing Laboratory)
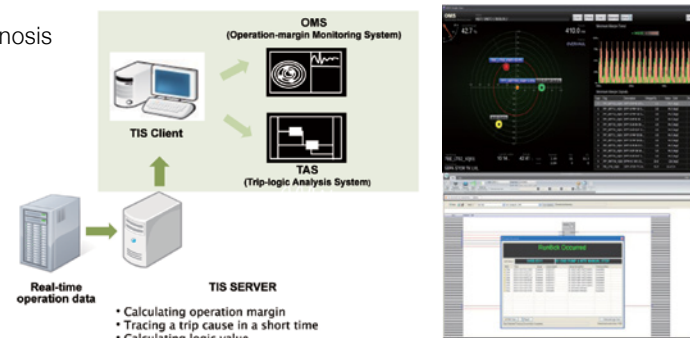
2 Compatible DCS Power Supply

- 100% Compatible with GE Mark-V
- Localized products are far superior to the existing power supplies(Mark-V, TCPS)

4 SOE System(Sequence Of Event System)

- Time Resolution : 1μs/512 points
- SOE Main Shelf : 512 points(extended 1,024 points)
- Speed : 10/100 Mbps Ethernet

5 Testing System

- Siemens Teleperm XP, LSIS, GE Mark-Ⅵ TMR
- Tester IO boards static-acting properties
- Identification of module info by Barcode
- Precise diagnostic In/Out test by sequence
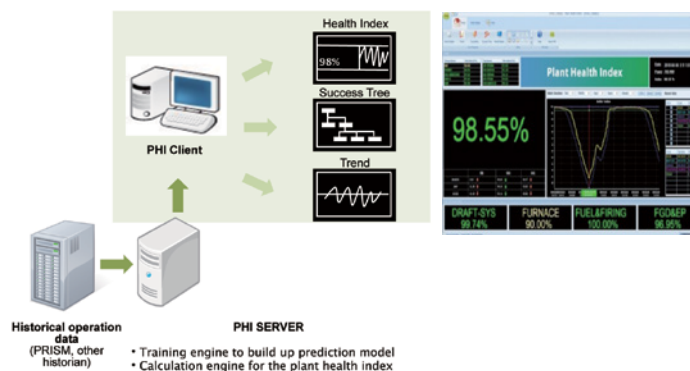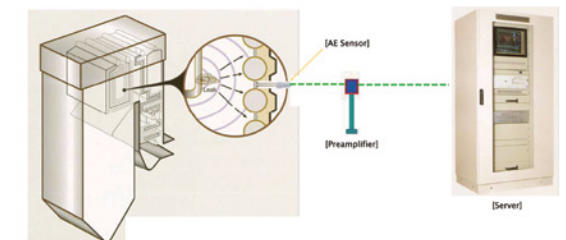
B. OPERATION SYSTEMS

1 ARIDES(Advanced Real-time Information Deployment Solution)

- Plant Operation Monitoring & Control HMI Solution
- Online Engineering Tools / Database / Calculation Point / Diagnosis
- System Organization thru Configuration
- High Expandibility / Flexibility / Reliability
- High Performance & Compatibility

2 TIS(Trip Investigation System)

- Trip Monitoring & Analysis Solution
- High Expandibility / Flexibility / Reliability
- Quick Analysing Trip Cause
- Improving Plant Availability

3 PHI(Plant Health Index)

- Predictive Diagnosis Solution
- Monitoring with a Index
- Early Warning for Equipment Failure
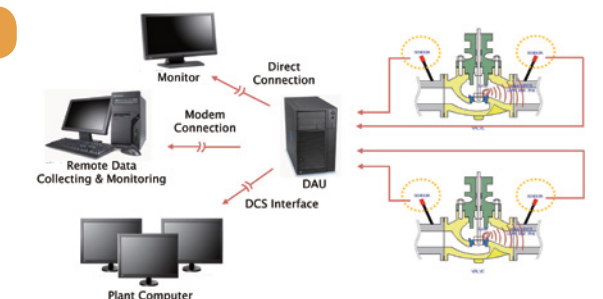- Effective Maintenance

6 BTLD(Boiler Tube Leak Detection System)

- Monitors the leakages of boiler tube
- Detect both High and Low frequency band
- Data logging : 2.5hr, 24hr, 10day, 30day, 60day trend

7 VLMS(On Line Valve Leak Monitoring System)

- Continuously detect for all kinds of high pressure and temperature valves
- Piezoelectric sensors detect elastic wave signal both low and high frequency

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C. TRANSMITTERS & GAUGES

1 Pressure Transmitter

- Accuracy : ±0.075% of calibrated span
- Data configuration with HART protocol
- Continuous self-diagnostic function

2 Guided Wave Radar Level Transmitter

- Guided wave measurement for up to 3.0mm accuracy
- Unaffected by dust, vapor, obstacles and turbulence

3 Temperature Transmitter

- Flexible Sensor Input : RTD, T/C, mV, ohm
- Data configuration with HART protocol

4 Level Gauge

- Material : Carbon Steel, Stainless Steel
- Max. Pressure : 30 ~ 250 kg/cm^3
- Size : 15A, 20A, 25A
- Visible Length : 171 to 4,000 mm Max
- Vessle Connection : 1/2" or 2" (15A ~ 50A)
  Flanged by your requirment

5 Flow Nozzel

- Flanged, Weld-In, Holding Ring type Flow Nozzle
- Standard : JIS Z8762, ISO5167, ASME, ISA1932
- Nominal Pipe Size : 100mm to 500mm (4 to 20 inches)
- Materials : A182-F11, A182-F304, A182-F316, F22, 304SS, 316SS
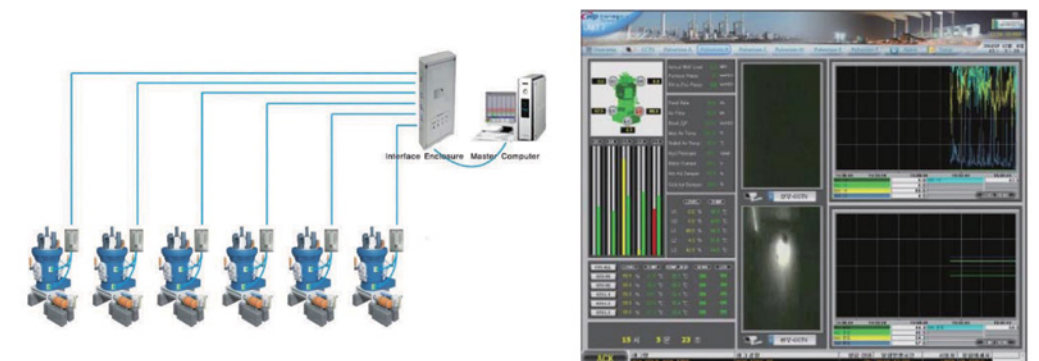
D. AUX. SYSTEM

1 Flow Metering System

Flow metering system provides the turnkey solution of the flow metering system plant for commercial transaction through the best quality and optimized economics in accordance with the requirements of the customer and the latest international industrial standard.
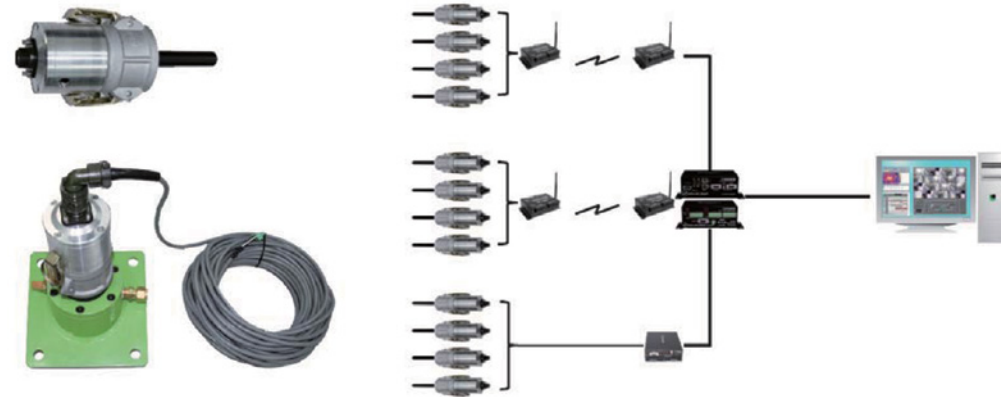
2 Pulverizer Fire Detection & Monitoring System

- Based on detection of light emission and CCD camera system
- Detects fire in pulverizer housings, classifiers, hot air ducts and coal drying equipment

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3 Micro CCTV Monitoring System

- Remote monitoring for weak points and wired or wireless connection.
- Installation : High Temperature Area, Burner Area, Pyrite Hopper etc.

4 OTMS (Optical Fiber Temperature System)

- Temp measurement using Fiber optical cable
- Real time measurement system
- Application
  - Power cable, Bus Duct, Etc, Temp Monitoring
  - Oil Tank, Conveyor, Tunnel, Etc, Fire Dection
  - Leak(Gas, Water), Concrete Crack
  - Etc

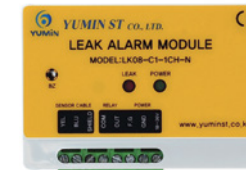## 5 Liquid Leakage Sensor

1) Film Sensors

LK08-T1-ST-2L
Water/Chemical leak detection sensor film(Zone Detection)
Bulk 1Roll=100m(One controller can be connected to sensor Max 200m)

LK08-T1-1000
Water/Chemical leak detection sensor film (Outdoor)
Bulk 1Roll=100m(in development)

2) Modules

LK08-C1-1CH-A
- 1channel sensor controller connected with LK08-T1-ST-2L with broken
- 1channel/LED display (Red-Leak,Yellow-Broken)/ (output-RELAY(NO)/BUZZER)

LK08-C1-5CH-B
- 5channel sensor controller connected with LK08-T1-ST-2L with broken
- 5channel/LED display (Red-Leak,Yellow-Broken)/ (output-RELAY(NO)/RS-485/BUZZER)

LK08-C1
- 1channel sensor controller connected with LK08-T1 with distance detection
- 1channel/LCD leak location Display/ LED display(Red-Leak, Yellow-Broken)/(output-RELAY(NC,NO)/ DATA Memory/ Parameter Setting/ RS-485 BUZZER)

LK08-C1-HDC01
- Hydrocarbon detection controller
- LED display(Red-Leak)/output-RELAY(NC,NO)/LCD resistance display(0~99MΩ) DATA Memory/ Parameter Setting/RS-485/ BUZZER)

6 Thermo Hydrostat(Constant Temperature / Humidity)

- 4 Function of Warming, Chilling, Humidifier & De-Humidifier under Energy Saving
- Humidifier : Zero-Electric Consumption by Evaporation
- De-humidifier : Zero-Electric Consumption by Waste-Heat
- Warming : 50% Energy-Saving by Adapted Heat Pump Process
- Chilling : 30% Energy-Saving by Liquid Gas Process

7 Ultra Sonic Metering Solution

1) Clamp-On Ultrasonic / Portable Flowmeter
- Accuracy 1.0% and Velocity 0.02~12m/s
- 1 path, 2 path model
- DSP Technology
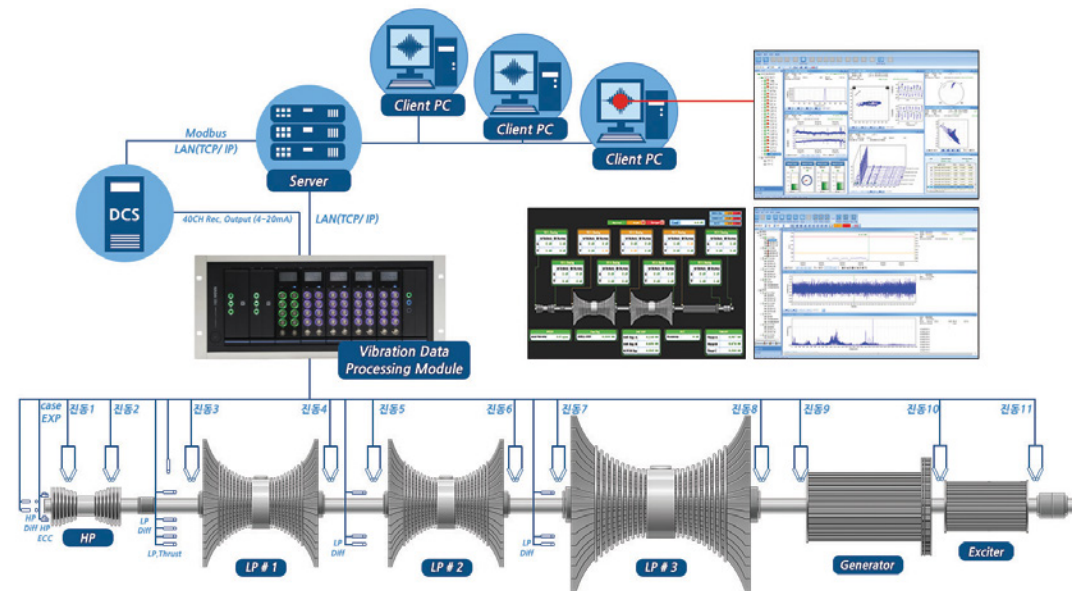- 10 hours operation and 2.4kg light weight

2) Ultrasonic Water Meter Xonic 5L
- Digital water meter
- 8 years operation with inner batteries
- Remote type available

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8 Vibration Monitoring System

- Online Vibration Monitoring System for TBN(Turbine) and BOP(Balance of Plant)
- A single independent module can process all types of signals
  (Displacement, velocity, acceleration, current, pressure, temperature, power, expansion and etc.)
- 8 Analogue, 2 Tacho Input Channels (per Module) → Max. 48 Analogue, 12 Tacho Input Channels (per 19"Rack)
- Rec. Output 4~20mA, 40 Channels
- Frequency Range : DC~25,600Hz
- Frequency Resolution : Max. 25,600 Lines
- A/D Resolution : 24 Bit
- Data Collecting Interval : Min. 0.1 Sec
- FFT, Trend, Multi Trend, Bode, Orbit, Time Base, OTB, Cascade, Waterfall, Polar, Etc.

E. ACCESSORIES

1 Fitting Series

- Superlok Tube / 37° Flared Tube
- Instrument Thread / High Pressure
- Bite Type Tube / Forged
- Hose Connector & Push-on Hose
- O-Ring Face Seal / Clean

2 Valve Series

- Ball / Plug
- Needle / Manifold
- Toggle / Relief
- Check / Root
- Double Block & Bleed Valves

3 Cupro Nickel Wrought Fitting

- Dimension Of Welding Ends
- Butt Welding / Socket Welding Fittings
- Threaded / Branch Connection Fittings

4 Forged Fitting

- Elbow(90°, 45°), Tee, Union, Coupling, Cap, Plug
- Bushing, Nipples, Swage, Boss, Reducer etc.

5 Flange

- Solid Weld Neck, Solid Slip-On, Stub Ends

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6 Surge Protector

• Signal, Telecommunication, Lan, Power Line

7 Signal Converter

• Compact, Program, Analog Type

8 Digital Indicator

• Mosaic, Panel Mounting, Large, Bar Graphic Type

9 Totalizer & Counter

10 Fire-Flame Detectors

1) IR Flame Detectors (FM Approvals)
  • Triple Infrared Spectrum Design
  • Highly Immune to False Alarm including Modulated IR background
  • User Sensitivity Selection
  • Specifications
    - Spectral Response : Triple Infrared Bands
    - Detection Range : 60m(200ft) for n-Heptane fire
    - Response Characteristics : Typical 5 sec
    - Temperature Range : (Operating) -40℃ to + 75℃
                         (Storage) -50℃ to + 80℃
    - Power Consumption : 4.8W maximum at 30 vdc
    - Electromagnetic Compatibility : EMI protected

2) UV / IR Flame Detectors (FM Approvals)
  • Dual Spectrum Design
  • False Alarm Immunity from Solar Radiation
  • User Sensitivity Selection
  • Korean Performance Standard – KOFEIS0301
  • Specifications
    - Spectral Response : Ultraviolet and Infrared
    - Detection Range : 15m(50ft) for n-Heptane fire
    - Field of View : Horizontal 90o/Vertical90o
    - Response Characteristics : Typical 5 sec
    - Temperature Range : (Operating) -40℃ to + 75℃
                         (Storage) -50℃ to + 80℃
    - Electromagnetic Compatibility : EMI protected

A. PLANT MANAGEMENT

1 IPIS (Intelligent Plant Information Management System)

• Integration of independently created design
• Variety of the start of information searching

2 Plant 3D Contents

• 3D model-based computer graphics, Structural map
• Using the bird's-eye view map, Animation, Multimedia
• Plant 3D educational content

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