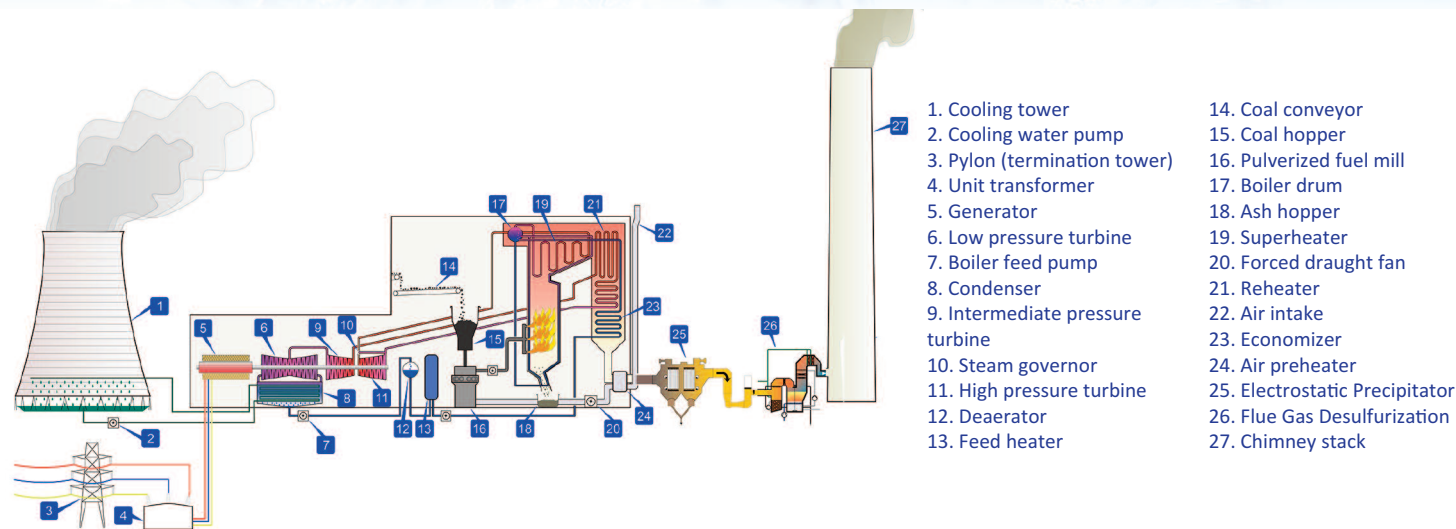


Liquid Analytical Instrumentation
for the Power Generation Industries



| ECD Product Solutions | Model T80 Transmitter Single Channel | Model T80 Transmitter Two Channel | Model S80 pH Sensors | Model S80 Conductivity sensors | Model FC80 Free Chlorine Analyzer | Model TC80 Total Chlorine Analyzer | Model CA6 Colorimetric Analyzer | Model DO90 ppb DO Analyzer | Model DO82 ppm DO Analyzer | Model TR86 Turbidity Analyzer |
|---------------------------------------|--------------------------------------|-----------------------------------|----------------------|--------------------------------|-----------------------------------|------------------------------------|---------------------------------|----------------------------|----------------------------|-------------------------------|
| Makeup water pH | | | | | | | | | | |
| Makeup Water Conductivity | | | | | | | | | | |
| Makeup Water Free Chlorine | | | | | | | | | | |
| Makeup Water Total Chlorine | | | | | | | | | | |
| Makeup Water Conductivity % rejection | | | | | | | | | | |
| Makeup Water Silica | | | | | | | | | | |
| Condensate Dissolved Oxygen, ppb | | | | | | | | | | |
| Condensate pH | | | | | | | | | | |
| Condensate Conductivity | | | | | | | | | | |
| Condensate Cation Conductivity | | | | | | | | | | |
| Condensate Silica | | | | | | | | | | |
| Feedwater Dissolved Oxygen, ppb | | | | | | | | | | |
| Feedwater Conductivity | | | | | | | | | | |
| Feedwater pH | | | | | | | | | | |
| Feedwater Cation Conductivity | | | | | | | | | | |
| Boiler Water Dissolved Oxygen, ppb | | | | | | | | | | |
| Boiler Water pH | | | | | | | | | | |
| Boiler Water Conductivity | | | | | | | | | | |
| Boiler Water Cation Conductivity | | | | | | | | | | |
| Boiler Water Silica | | | | | | | | | | |
| Cooling Water pH | | | | | | | | | | |
| Cooling Water Conductivity | | | | | | | | | | |
| Cooling Water Free Chlorine | | | | | | | | | | |
| FGD Scrubber pH | | | | | | | | | | |
| Effluent pH | | | | | | | | | | |
| Effluent Conductivity | | | | | | | | | | |
| Effluent Total Chlorine | | | | | | | | | | |
| Effluent Dissolved Oxygen | | | | | | | | | | |
| Effluent Turbidity | | | | | | | | | | |

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Accurate and Reliable
Process Measurement

- pH
- ORP
- Conductivity
- Resistivity
- Free Chlorine
- Total Chlorine
- Dissolved Oxygen
- Phosphate
- Ammonia
- Silica



Makeup Water

Raw water is chlorinated, to prevent microbial growth in Pretreatment and then dechlorinated. The water may be pretreated by reverse osmosis, lime softening or sodium softening to remove excessive hardness. It is finally demineralized using Ion exchange resins, typically in Cationic, Anionic and Mixed Bed exchangers.

Measurements:

- Free Chlorine • Total chlorine • pH
- Conductivity • Resistivity • Silica
- Dual conductivity, % rejection

Condensate

Steam is condensed to water and collects in the hotwell. Leaks in the Condenser tubes can introduce impurities, gasses and corrosive salts from the cooling water. Leaks must be detected quickly to avoid damage to the boiler. Impurities are removed by the condensate polishers and the purified water is blended with the Make Up water to become Feedwater.

Measurements:

- Dissolved Oxygen, ppb level
- Cation conductivity • Conductivity
- High Purity pH • Silica

Feed Water

The Feedwater is preheated, deaerated and sent to the Economizer and Boiler. The water quality requirements of the boiler must be met at this stage to assure the boiler efficiency and steam quality. Impurities in the feedwater may cause corrosion in the boiler piping and will increase the rate of blowdown.

Measurements:

- Dissolved Oxygen, ppb level
- Cation conductivity
- Conductivity • High Purity pH

Boiler Water

The boiler converts water into steam. Steam is separated from water in a drum boiler, and any contaminants are concentrated in the water as the steam is generated. These impurities are removed by Blowdown. High concentrations of dissolved solids can form deposits on the heater tubes lowering the efficiency or corroding the super heater tubes. Steam quality also suffers allowing solids carryover that will deposit on the turbines.

Measurements:

- High Purity pH • Silica • Conductivity
- Cation conductivity
- Dissolved Oxygen, ppb level

Steam

Blowdown



Condenser

Hot Water

Cold Water



Cooling Tower

The cooling tower uses evaporative cooling to provide the Condenser and other heat exchangers with cooling water. The pH of the water is monitored to minimize scaling and corrosion. The blowdown is controlled by conductivity.

Measurements:

- pH • Conductivity
- Free and/or Total Chlorine



HP/LP Turbines



Superheater



Effluent

Water from cooling tower blowdown, resin bed regeneration and any other water that cannot be reused must be treated to the environmental standards before being released from the plant

Measurements:

- pH • Conductivity • Total Chlorine
- Dissolved Oxygen • Turbidity



Scrubbers

Flue gas desulfurization removes sulfur dioxide, SO₂, an acid rain gas from the flue gas. A suspension of limestone is sprayed into the flue gas, the SO₂ reacts with the limestone and air to precipitate gypsum which is separated and sold.

Measurements:

- pH



Industrial Analytical Measurement Designed for Power Plants

- **S80 High Purity Water pH Sensor** - designed for long life and quick easy electrode replacement.



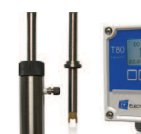
no need to replace the complete sensor -- just the HPW electrode

- **FC80/TC80 "Reagentless" Chlorine Analyzers** - simple installation and low maintenance



no costly reagents needed -- lowers overall running cost

- **Triton DO90 ppB Dissolved Oxygen Analyzer** - SST flow cell with quick easy electrode replacement



Like the HPW pH sensor -- quick easy electrode replacement



T80 Universal pH, ORP, ION, Conductivity, Resistivity transmitter



CSX2 Conductivity Resistivity Sensor



S80 High Purity pH Sensors



S80 Conductivity Sensors



FC80 or TC80 Chlorine Analyzers



TRITON TR86 Turbidity



TRITON DO90 ppb Dissolved Oxygen



CA6 Colorimetric Silica Analyzer