

## Our Pedigree

Procon Engineering is a leading manufacturer and supplier of turnkey solutions for Process Control & Weighing Systems. The company incorporates the well-established names of *Lintvalve Boiler Acoustic Leak Detection Systems, Defiant, Negretti & Info Belt Weighers.*

### Our skill set includes:

- System Feasibility Studies and Design
- Project Management
- Process Evaluation and System Optimisation
- Mechanical and Electrical Engineering
- Panel Building
- Digital and Analogue Electronics
- Application and System Software
- Service and System Maintenance

### Project Management

We understand how important it is to work closely with our clients from the outset of any project and as a result, **Procon Engineering** is organised specifically to provide highly effective project management. As part of this process we establish the functional design specification with our customers and provide detailed project plans, milestones and reviews - all under the umbrella of our ISO9001:2008 accreditation. We take full responsibility for your system providing you with one point of contact. In many applications we work in conjunction with clients' engineering departments to ensure smooth implementation within required time frames.

### Service and Support

**Procon Engineering** places great emphasis on after-sales service and support. We operate a comprehensive service, support, installation and commissioning facility throughout the **UK and the Rest of the World - 24 hours a day, 7 days per week.** Our contract maintenance schemes ensure your plant performance is maintained at peak potential. We support and cover our own and most other manufacturers' products and systems.



- 7-day, 24 hour Service and Support
- Service Contract Agreements
- Cost-effective Calibration Techniques
- Installation and Commissioning
- Repair, Refurbishment and Upgrades
- Remote Modem Diagnostic Support



We also provide comprehensive training, both in-house and on site, so that you can get the best from your Procon Leak Detection System

**Procon Boiler Acoustic Steam Leak Detection Systems are in use throughout the world.**  
*Our customers include:* AES, Alcan, China Light & Power, Drax Power, Dong Energy, EDF, ENDESSA, E.ON, ESKOM, Hong Kong Electric, KEPCO, NTPC, RWE, Santee Cooper, SASOL, Scottish Power & Vattenfall

*Other Procon brochures are available on request pertaining to our capabilities in:*  
**Process Control, Process Weighing, Belt Weighing, Hazardous Area Weighing and Service & Support**



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Registered in England  
 No. 873028

Issue 3 April 2023



# Procon Engineering



## BOILER ACOUSTIC STEAM LEAK DETECTION

**... increasing your boiler availability and profits**



## Procon Boiler Acoustic Steam Leak Detection System

Our comprehensive Boiler Acoustic Steam Leak Detection Systems have a proven track record at power stations around the world. Experience shows that the early warning of a small boiler tube leak can prevent expensive secondary damage and unscheduled outages. **Evidence shows that an increase in boiler availability of just one day will more than cover the cost of a leak detection system.** Each application is specifically designed to provide the optimum solution. Depending on the environmental conditions and the client's requirements, Procon can select either true microphone sensors or metal structure borne sensors, or a combination of both. With more than 250 installations in over 20 countries world-wide, we can justifiably claim more experience than any other boiler acoustic leak detection company.



## Benefits

- Increased Personnel Safety
- Early warning of a small boiler tube leak can prevent expensive secondary damage and unscheduled outages
- Increased availability, reduces repair time, and increases plant efficiency
- Planned and scheduled orderly shutdown of a boiler at the most convenient time
- An increase in boiler availability of just one day will more than cover the cost of a leak detection system
- Safeguards your investments
- Increased operating profits by *Reducing Financial Penalties*
- Other benefits include the Detection of abnormal boiler operating conditions, for example *the incorrect operation of soot blowers, inspection ports being left open, and steam leaks external to the boiler*



Air Borne (Microphone) Assembly



Structure Borne Assembly



Loudspeaker Unit

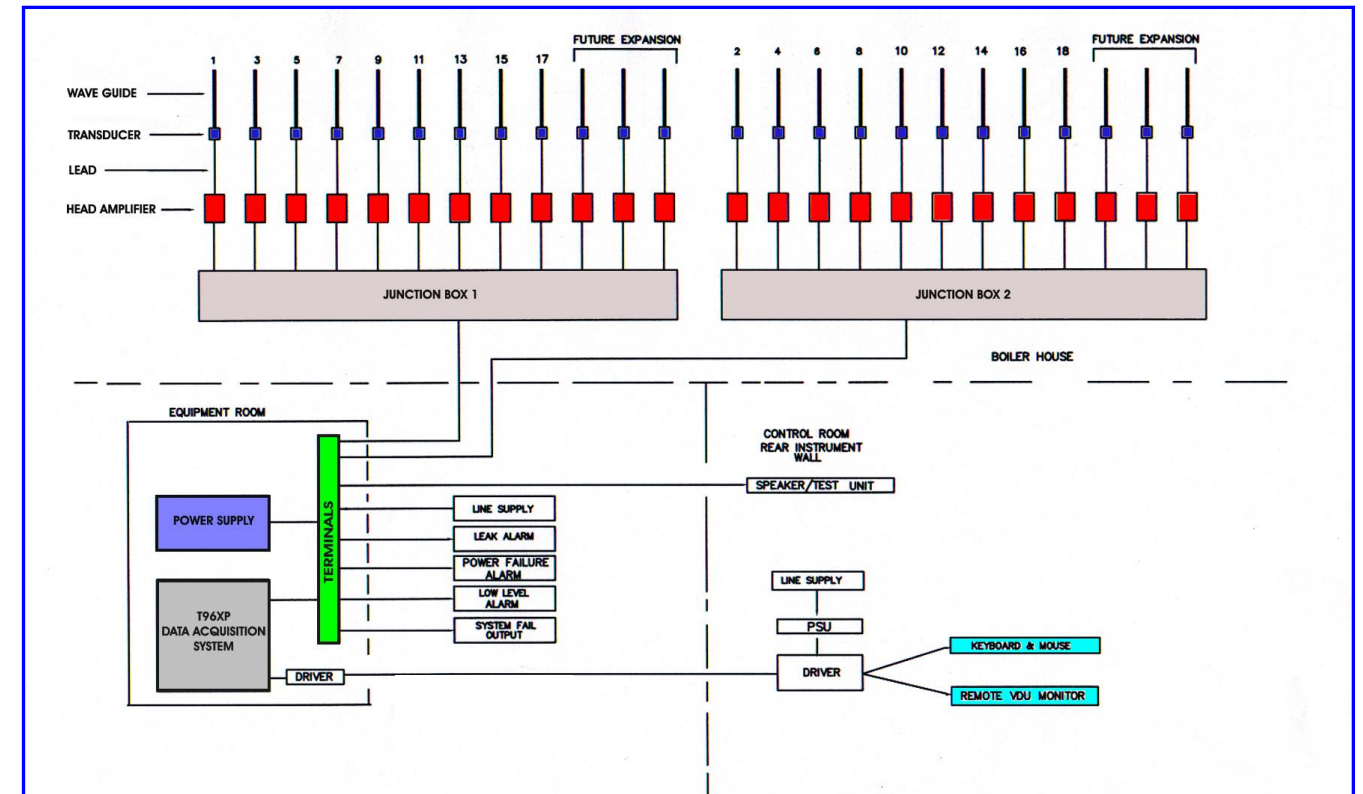


Portable Sensor Calibrator

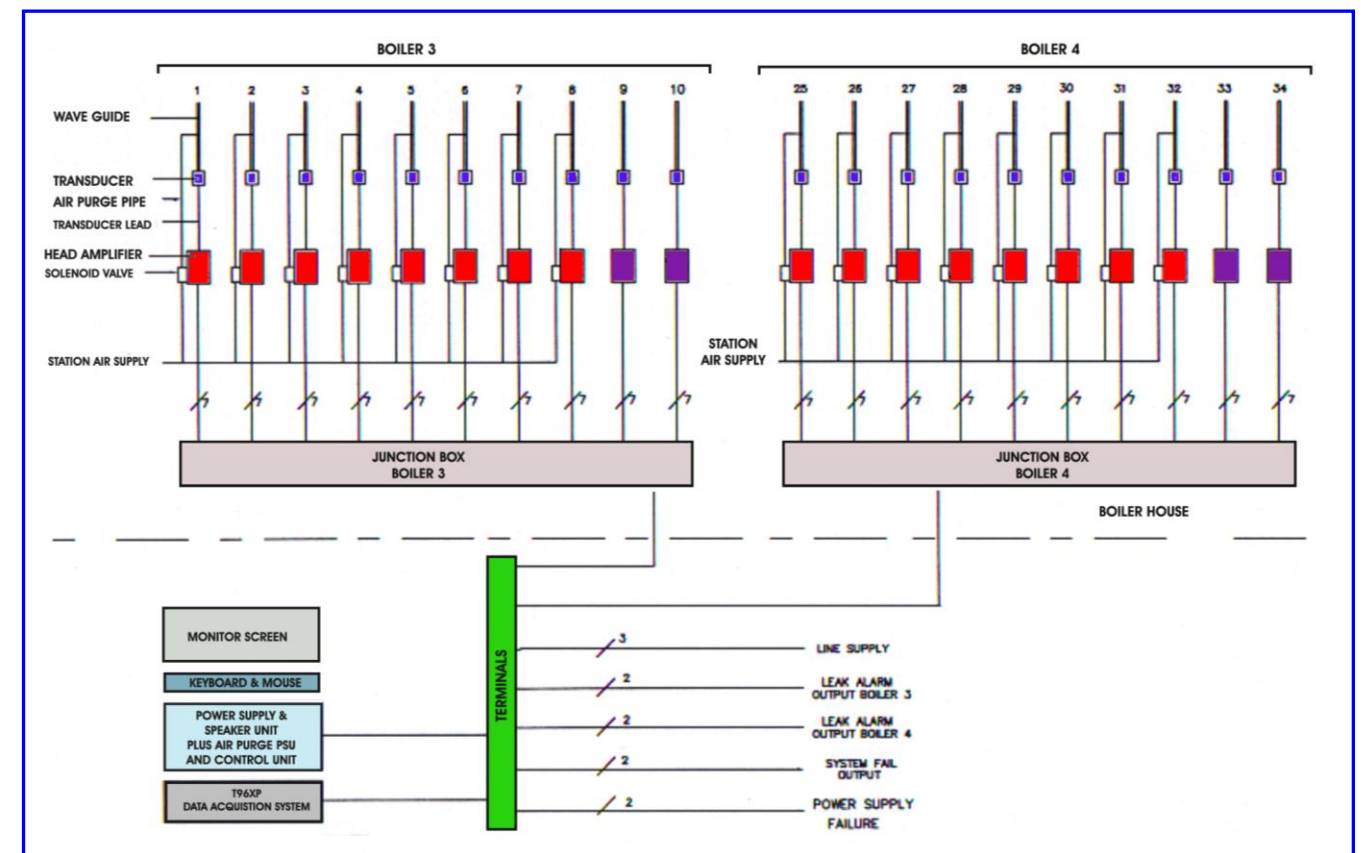


T96XP Data Acquisition System

## Typical Application Schematics



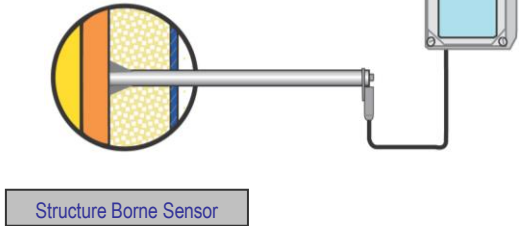
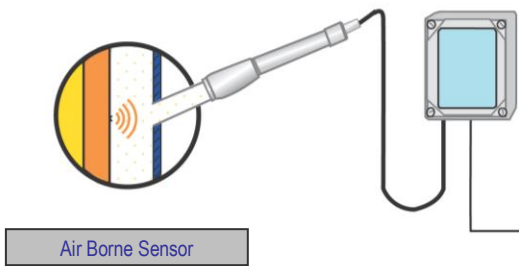
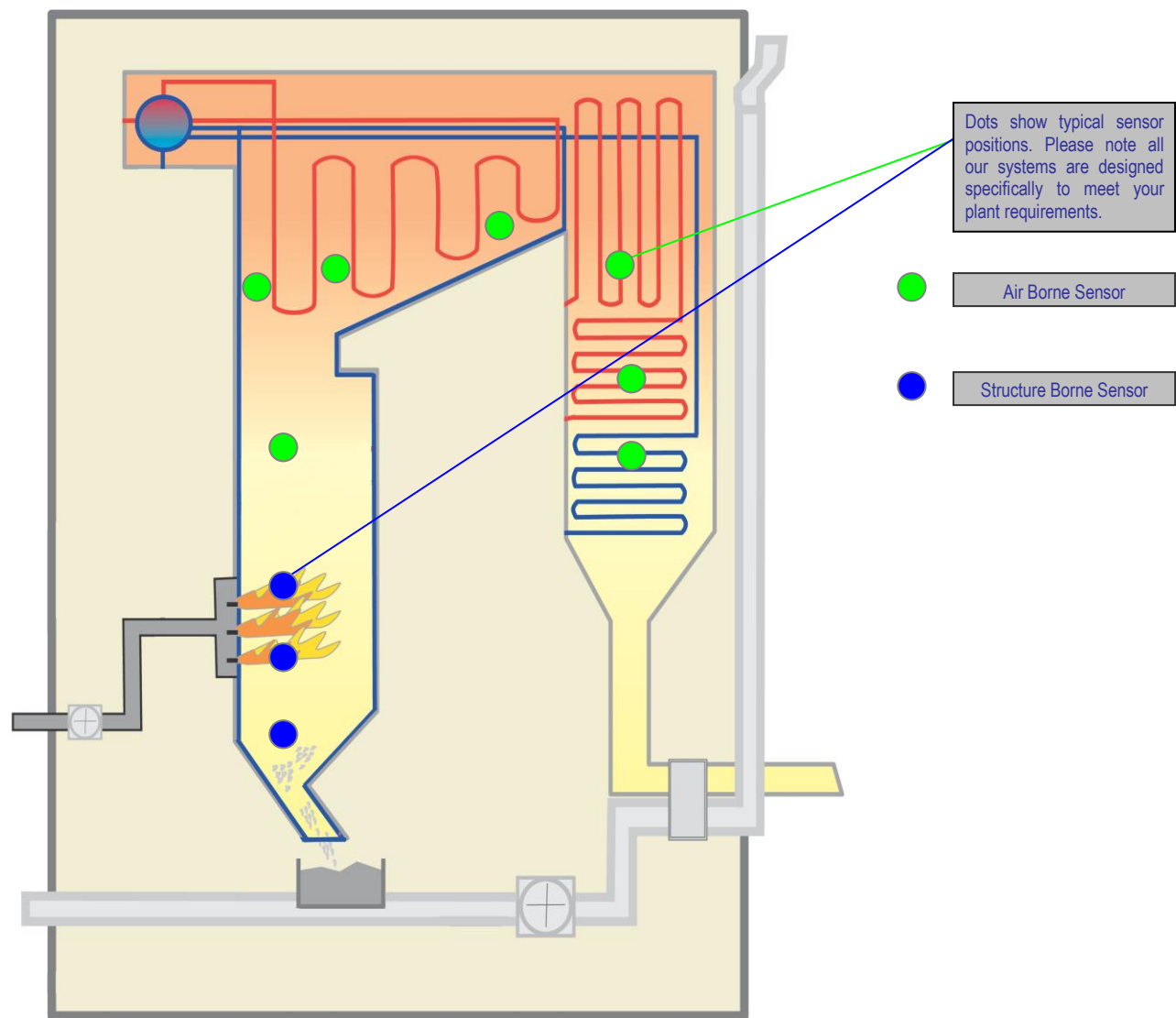
- 18 channel airborne sensors on 600 MW Coal Fired Boiler System
- Stand-alone computer with remote monitor, keyboard and loudspeaker in control room



- 16 channel airborne sensors + 4 channel structure-borne sensors [mounted in lower furnace] on 2 boilers with common stand-alone computer



# Typical Application





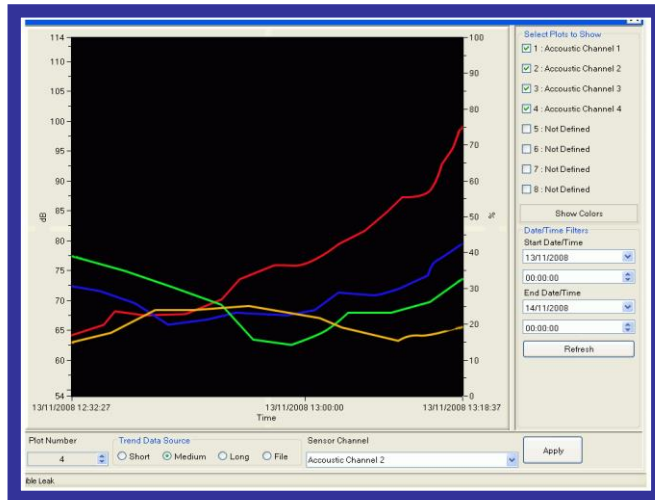
## Powerful Diagnostics

The **Procon Leak Detection System** provides a comprehensive hardware and software solution with our T96 control terminal at its heart.

This is designed so that boiler side equipment outputs a totally filtered signal that can be connected directly to:

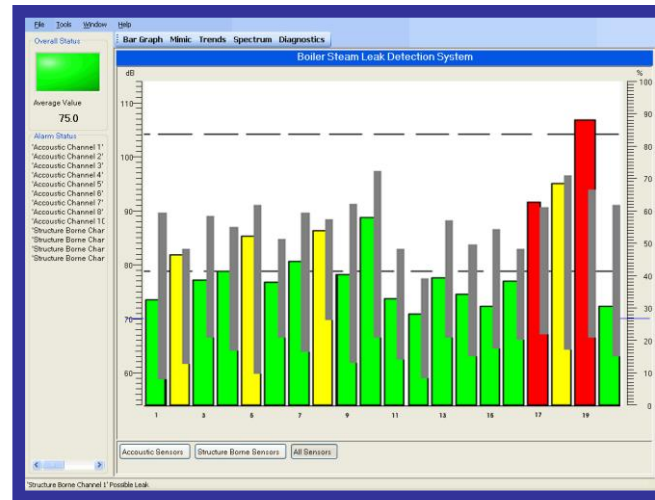
- The power plant's DCS
- A Procon standalone PC with display and remote monitoring option via modem
- A Procon computer linked to the DCS

Custom designed software screens provide operators with powerful diagnostic tools to detect leaks and other boiler abnormalities.



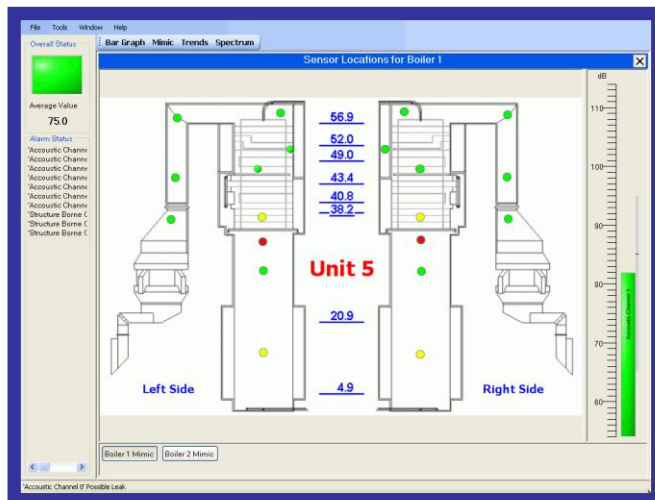
### TREND

Up to 8 channels can be displayed over time periods of minutes, hours, days or weeks.



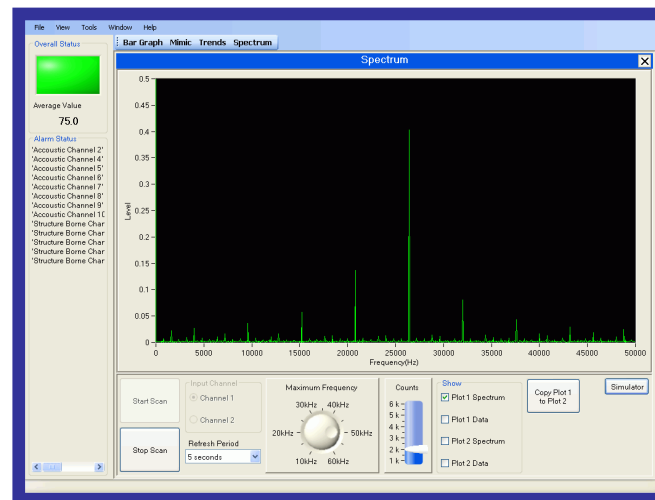
### BARGRAPH

The bars change colour to show the status of each signal. In most configurations, sootblower or air purge sounds are not displayed.



### BOILER MIMIC

All screen displays carry the boiler name with date and time. The boiler diagram is custom configured for each specific installation.



### FFT-SPECTRUM

The frequency spectrum of any individual signal may be selected. All screen displays carry the boiler name with date and time.

## Features

- Acoustic Microphone – Shock and Vibration resistant, 30 to 50 times more sensitive than piezoelectric microphones
- Structure Borne Dual Sensor - a) Piezoelectric based sensors use the boiler wall as a diaphragm, and b) Measure ultrasonic sound generated by leaks in the boiler structure
- Continuous Monitoring - Stand alone system, can be connected to the plant DCS
- Industrial PC XP version - Expandable up to 96 channels, servicing up to 4 x Boilers
- Trend facility - Up to 8 channels can be displayed over a selected time period
- Bargraph for each channel - The bars change colour to show the status of each signal
- Boiler Mimic Diagram - Designed to customers' requirements
- FFT (Fast Fourier Transforms) – providing Spectrum Analysis
- Identified as a true Steam Leak
- Early Warning Alarms for Low Signal, Possible & Probable Leaks
- Alarms for other Abnormal Boiler Sounds
- Soot-blower interlocks - Can be phased across the boiler
- Loudspeaker Unit - Enables operators to evaluate the boiler sound
- Unique Portable Sound Calibrator - Enables each channel to be set accurately and repeatedly



## Planned Maintenance



The increasingly competitive environment for power generation is requiring that utilities manage their operating plants to achieve 'least-cost' generation and reducing operating and maintenance costs is one key element in that effort. Achieving such cost reduction, whilst still maintaining plant safety and reliability, requires operators to have a clear ongoing picture of the condition of key plant components. Assessing the condition of major boiler components is a significant part of the overall plant maintenance program and Acoustic Boiler Leak Detection Systems play a crucial role in such initiatives.

Fossil power plant boilers include components subject to damage during both plant operations and maintenance activities. When the damage becomes sufficiently severe, failure of the component will occur with likely consequences for operations and with frequent impact on personnel safety. Failures in boiler components currently account for the largest percentage of plant forced outages. (In a survey carried out in Europe and the US, the Electric Power Research Institute (EPRI) found that around 6% of lost availability for power generation plants was caused by boiler tube leaks.) In order to reduce the risks of such failures, utilities perform condition assessment activities that are focused upon determining when the component failure risk is increasing such that remedial actions can be taken to prevent actual failure. The general form of these activities is to determine the current state of damage, assess the rate of new damage accumulation and identify the point in life when failure is likely to occur. With this information to hand, the utility staff can plan for actions in maintenance and operations that avoid in-service failure.

