

Autoflame

World leading combustion management systems

Presented by

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North American Technical Sales Manager

May 2008



- **Established in 1972**
 - By Brendan Kemp, an experienced Combustion and electrical Engineer
 - Originally burner sales and service company
- **Based in London**
 - Offering boiler-house solutions Worldwide
 - European office (2004)
 - North American office (2005)
- **Privately Owned**
 - Family business
 - 50 employees

Worldwide Representation

Technology Centres



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OBJECTIVES

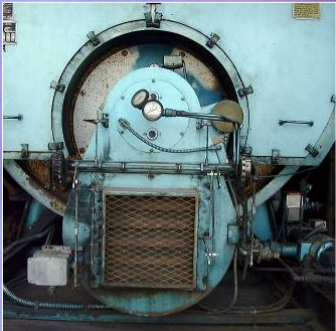

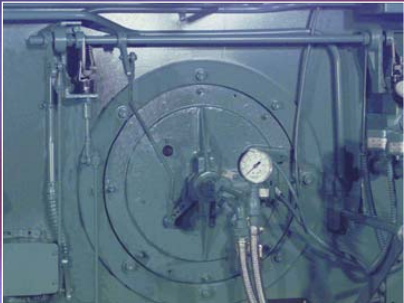
➤ Intelligent answers to burning questions....

1. Safe and reliable operation
2. Repeatability
3. Increased boiler efficiency
4. Emissions reduction
5. Energy savings

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The Problem

- > Jackshaft/linkage
 - > Slop
 - > Hysteresis losses



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The Solution

- > Direct Drive
 - > Repeatability
 - > Less Maintenance



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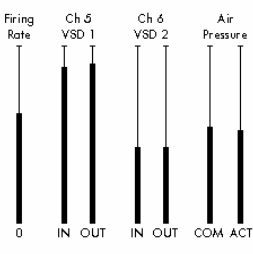
M.M. STATUS

(CHANNEL ANGULAR POSITION)

ch. No.	POS'N	OUTPUT TYPE
CH.1	90.0°	Servo
CH.2	65.0°	Servo
CH.3	51.0°	Servo
CH.4	Servo
CH.5	16m/A	Drive
CH.6	Drive

Trim On Ch. No. '2'

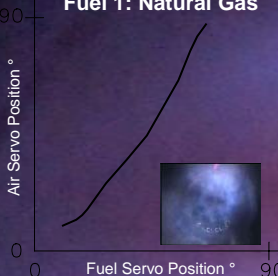
VSD STATUS



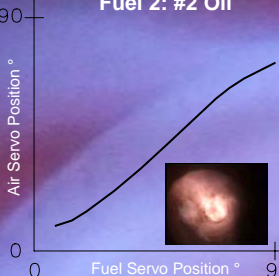
Firing Rate, Ch 5 VSD 1 IN OUT, Ch 6 VSD 2 IN OUT, Air Pressure COM. ACT.

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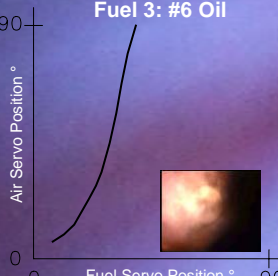
Fuel 1: Natural Gas



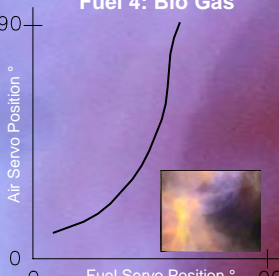
Fuel 2: #2 Oil



Fuel 3: #6 Oil

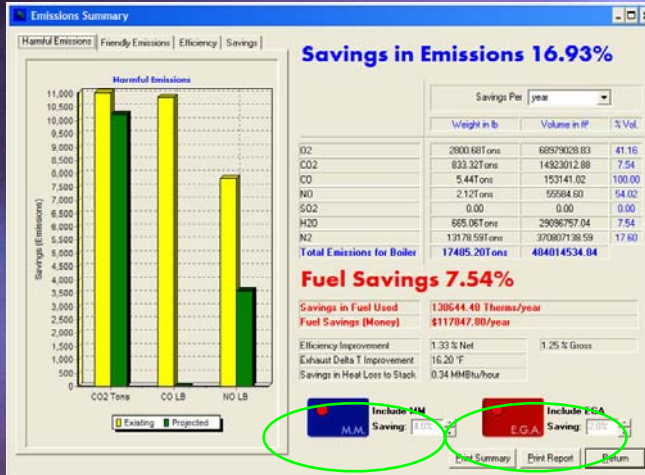


Fuel 4: Bio Gas



Savings!!

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Savings through improvements in the control system


Emissions Calculator Savings

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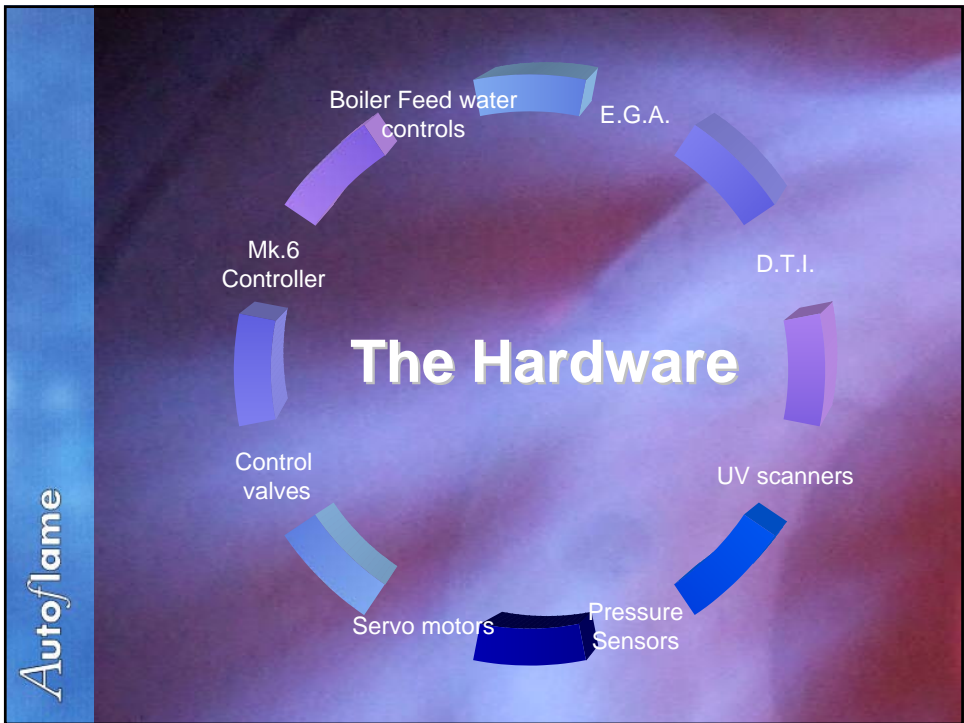
Boiler Size	100hp 4.2MMBtu	500hp 21MMBtu	1000hp 42MMBtu
Cost Savings (\$)	23530.74	117653.77	235307.54
Fuel Savings (therms)	27171.76	135858.86	271717.73
Emissions Savings (%)	17.51	17.51	17.51
Fuel Savings (%)	7.39	7.39	7.39

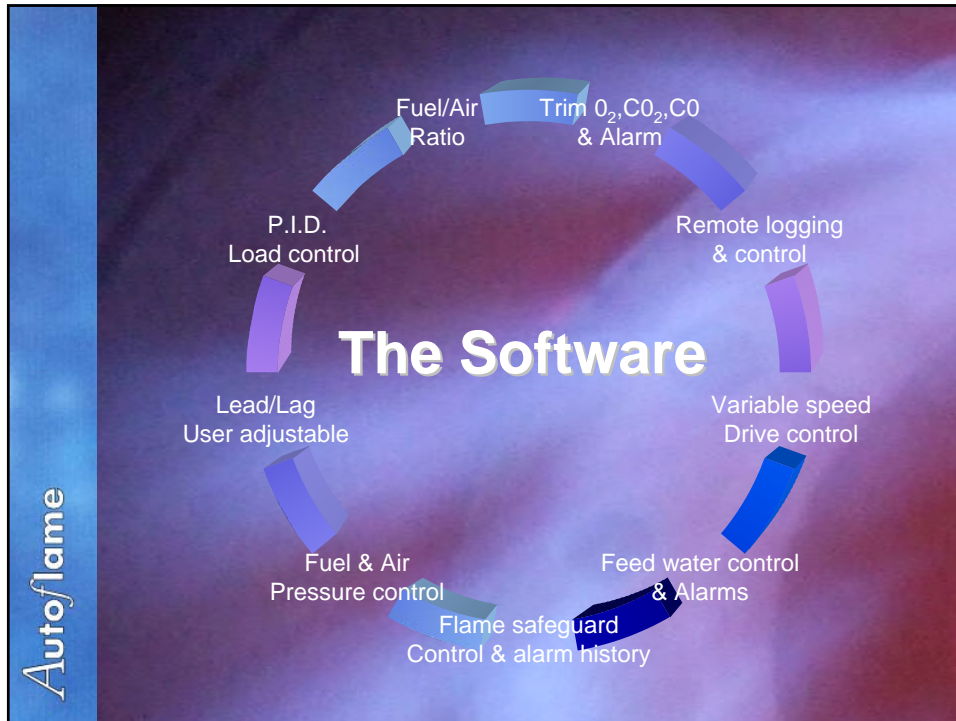
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Individual Systems



	Mk6 Evolution	Mini Mk6	Mini Mk5 Evolution
MM fuel-air ratio control	✓	✓	✓
3 parameter trim	✓	✓	✓
Precise boiler load control	✓	✓	✓
Flame safeguard control	✓	✓	✓
Flame switch	✓	✓	
UV Flame safeguard	✓	✓	✓
Flame rod (ionization)			✓
Gas, oil & air pressure supervision	✓	✓	
Remote monitoring and control	✓	✓	✓
IR upload/ download	✓	✓	✓
User display	¼ VGA	LCD 4 line	LCD 4 line
Lead/ Lag Control	✓	✓	✓





Exhaust Gas Analyser

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EGA

CONTINUOUS EXHAUST GAS ANALYSER SYSTEM

O_2 , CO_2 , CO , NO , SO_2 , HT

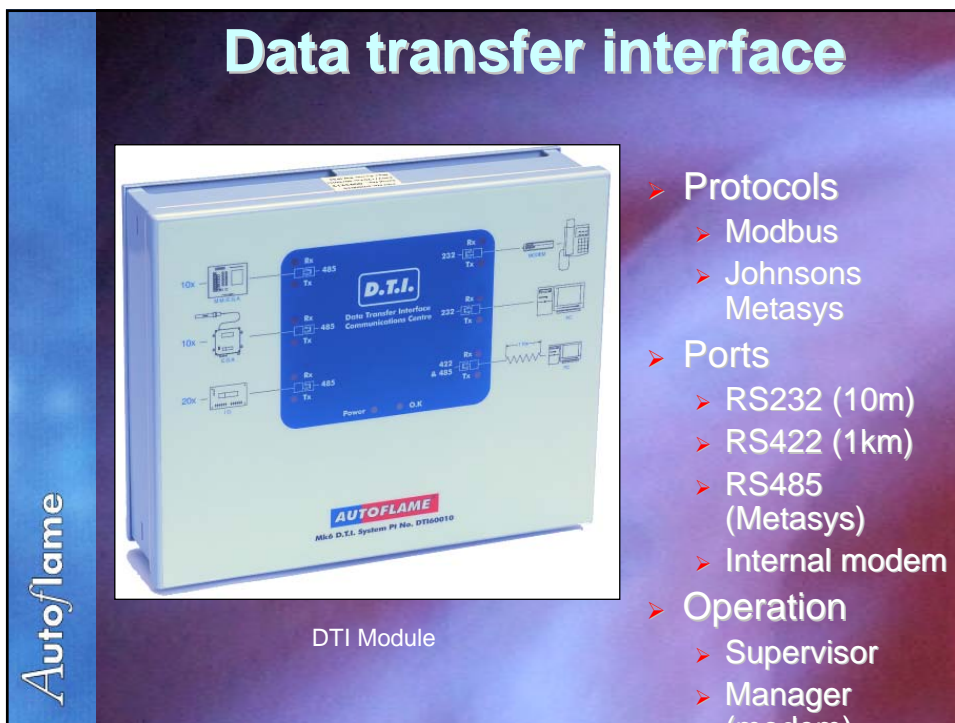
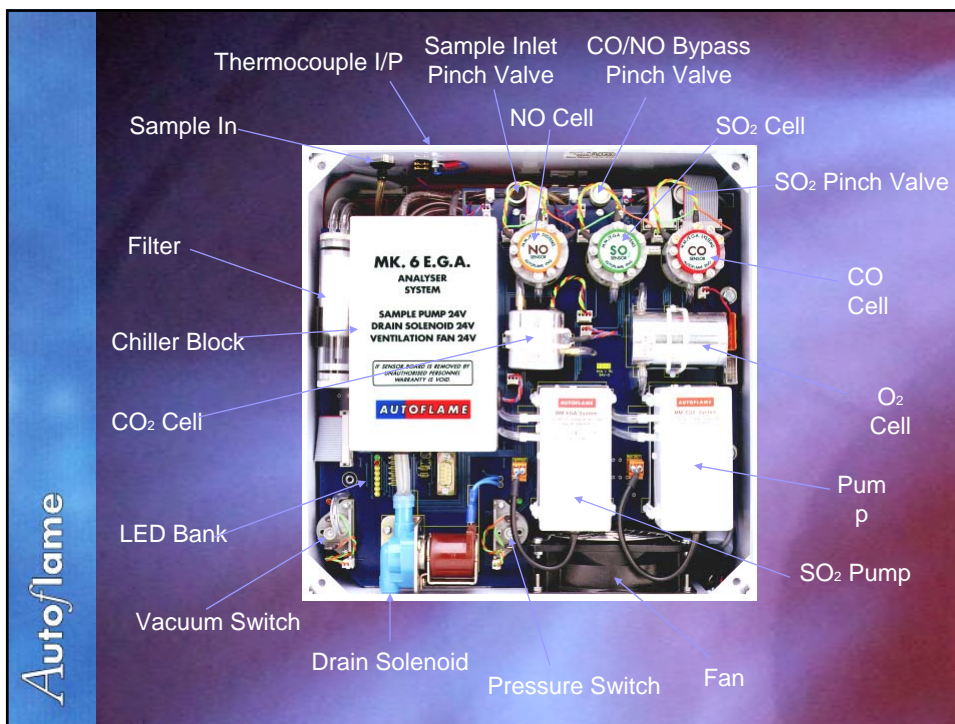
THREE PARAMETER TRIM O_2 , CO_2 , CO

EMISSIONS MONITORING

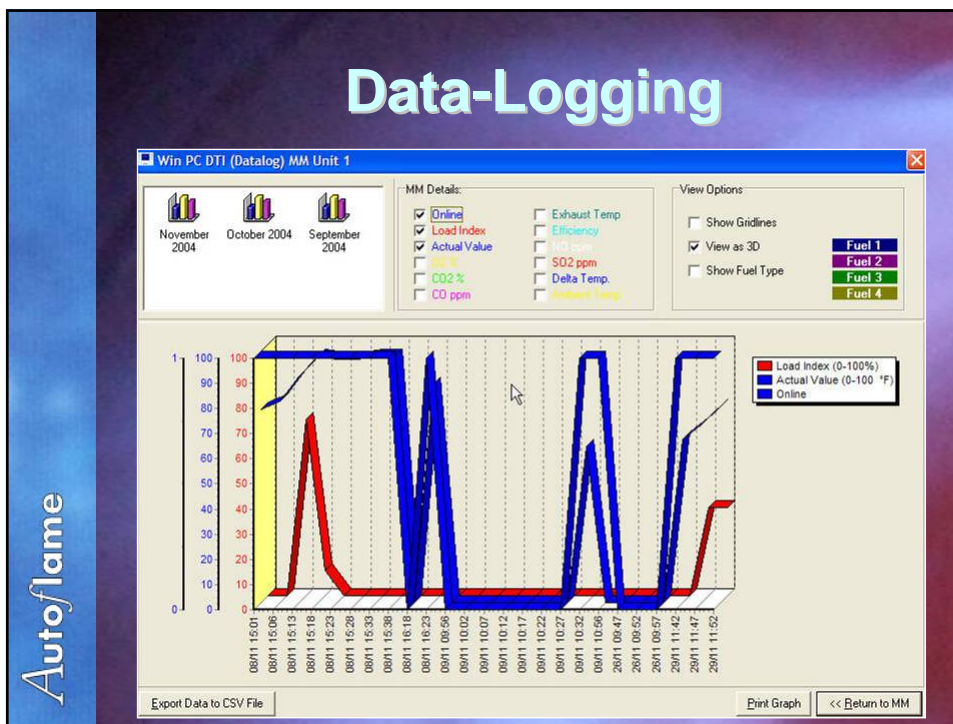
SYSTEM IN NO. 10013004

- > Sampling and display
 - > O_2 , CO_2 , CO , NO & SO_2
 - > Exhaust temperature
 - > Combustion efficiency
- > 3 parameter trim
 - > O_2 , CO_2 , CO
- > On-line supervision
 - > O_2 , CO_2 , CO Alarms
- > Local display (standard)
 - > Calibration
 - > Changing sensors
 - > View error log
 - > Hours run

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Data-Logging



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NEW PRODUCTS

- MK7
- EPA approved EGA

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Mk7 Evolution

World Leaders in Combustion Management Solutions

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STATUS
00 % FIRING RATE

REQUIRED FUEL: 63 F
REDUCED: 47 F
ACTUAL: 26 F

BURNER STOP: 00
BURNER START: 00

FUEL 1: NATURAL GAS

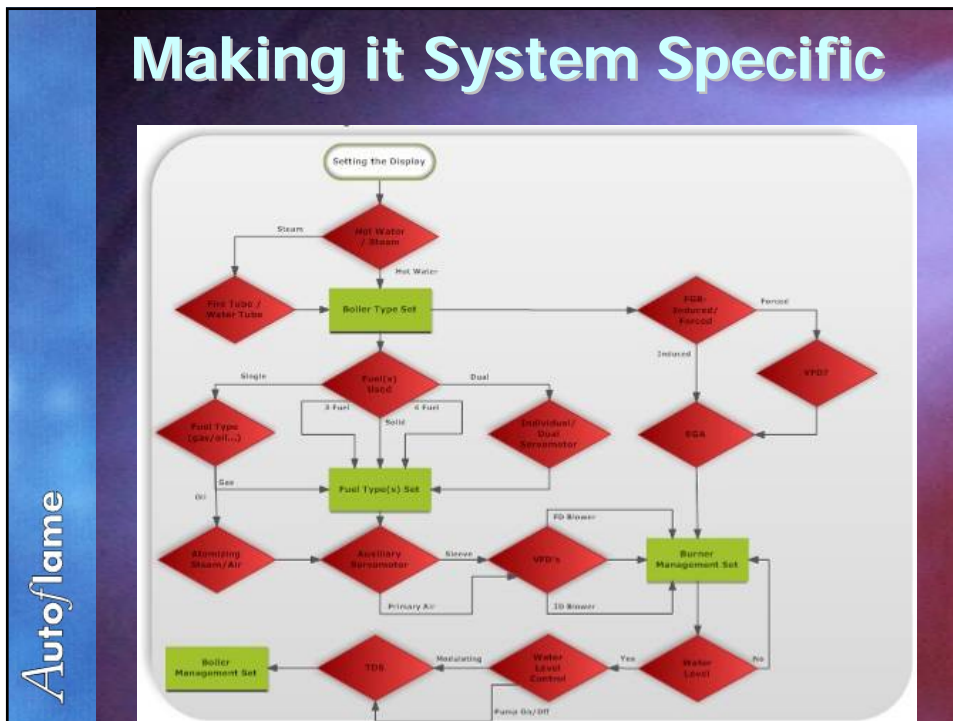
FUEL AIR RATIO

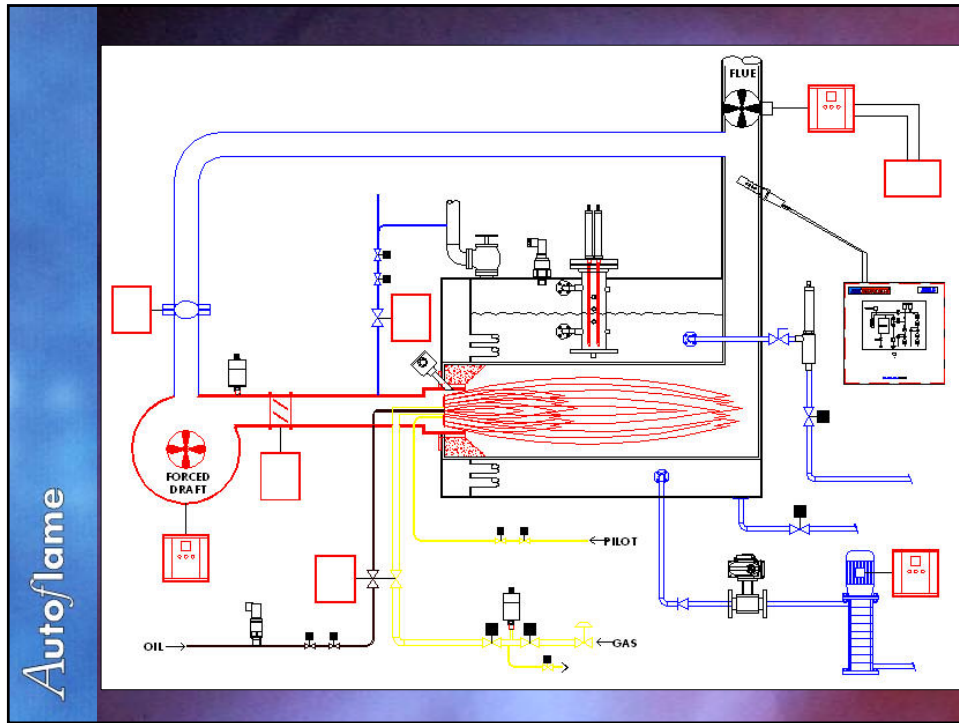
CH 1	00.1	CH 1
CH 2	00.2	CH 2
CH 3		
CH 4		
CH 5		
CH 6		

SET OPTIONS
OPTION No. : 1
Boiler Temp. Pressure Sensor Type
CURRENT SETTING : 3
Temperature Sensor 0-400 C, 50-750 F

END USER DAY TO DAY OPERATION
2.14.5.1 Natural Gas Operation
Upon initial selection of a gas burner fuel, a large screen Pop-up will follow by the WIR (WATER) screen. The WIR will require the user to select the required burner fuel source.
To select the required burner fuel source, use the Fuel and use the Fuel .
To select the required burner fuel source, use the Fuel and use the Fuel .
The range of the required burner fuel is based according to the type of burner being used (see below).
If the burner fuel is not set correctly, the burner will not fire. The burner will not fire until the correct burner fuel is set.
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Making it System Specific



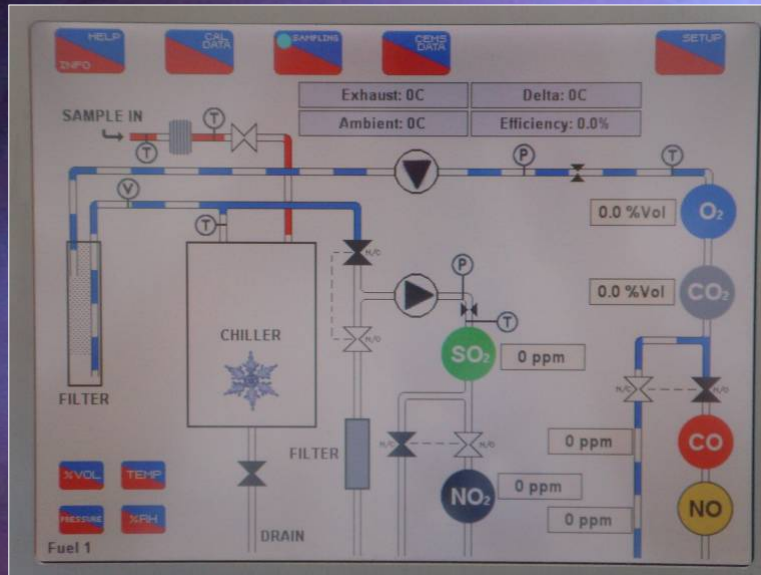


NEW PRODUCTS

- **MK7**
- **EPA approved EGA**

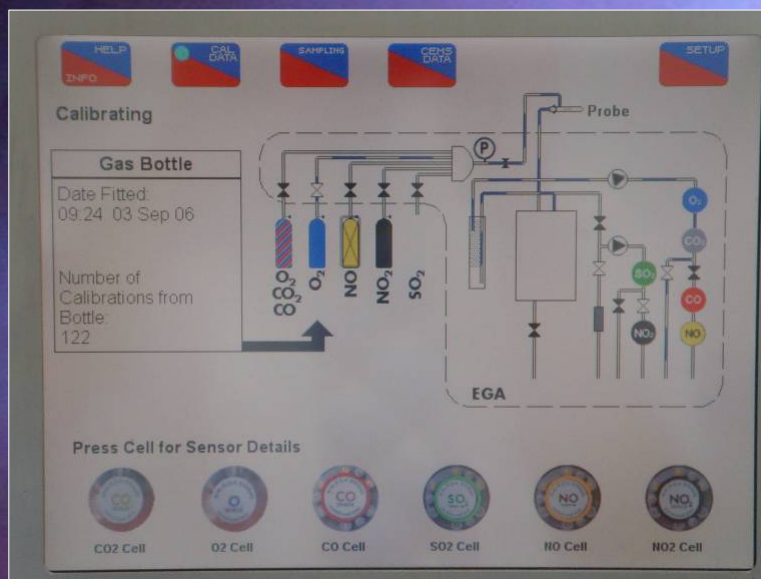
Tubing Schematic

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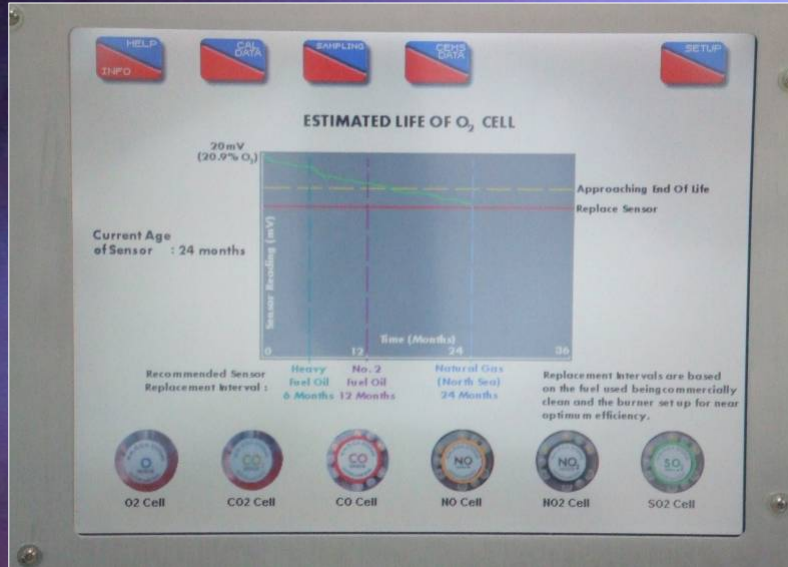
Self-calibration

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Cell Life

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World Wide Patents:

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- | | | |
|-------------------|----------------------|-------------------|
| ▶ 02138610 | Micro Modulation | U.K., Australia |
| ▶ 1317356 | Micro Modulation | Canada |
| ▶ 02169726 | Exhaust Gas Analysis | U.K. |
| ▶ 00195866 | Exhaust Gas Analysis | U.K., |
| ▶ GB9715894 | Mk.6 M.M. System | Worldwide |
| ▶ PCT/GB9702010 | Mk.6 M.M. System | Worldwide |
| ▶ GB9715899 | Mk.6 M.M. System | U.K. |
| ▶ GB9715900 | Mk.6 M.M. System | U.K. |
| ▶ 09/828581 | Water Level Control | U.K., USA, Europe |
| ▶ 0108229.6 | Water Level Control | U.K., USA, Europe |
| ▶ PCT/GB02/01547 | Water Level Control | U.K., USA, Europe |
| ▶ US 6,520,122,B2 | Steam Flow Metering | |
| U.S.A | | |
- ▶ All patents listed are applied and granted.



For further detailed information

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