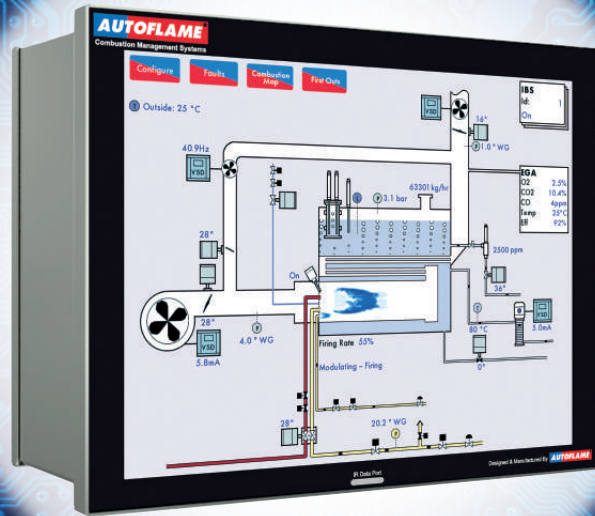


**AUTOFLAME**<sup>®</sup>

COMBUSTION MANAGEMENT SYSTEMS



***PRECISE, INTELLIGENT CONTROL***

***GUARANTEED***

*THE WORLD'S FIRST & MOST ADVANCED COMBUSTION  
CONTROL SYSTEM*



[www.autoflame.com](http://www.autoflame.com)

## The World's First & Still Most Advanced Combustion Control Systems

Autoflame was established in London, UK, by innovative combustion engineering pioneer; Brendan Kemp.

Autoflame continues to be a family owned business with headquarter in Biggin Hill, Kent.

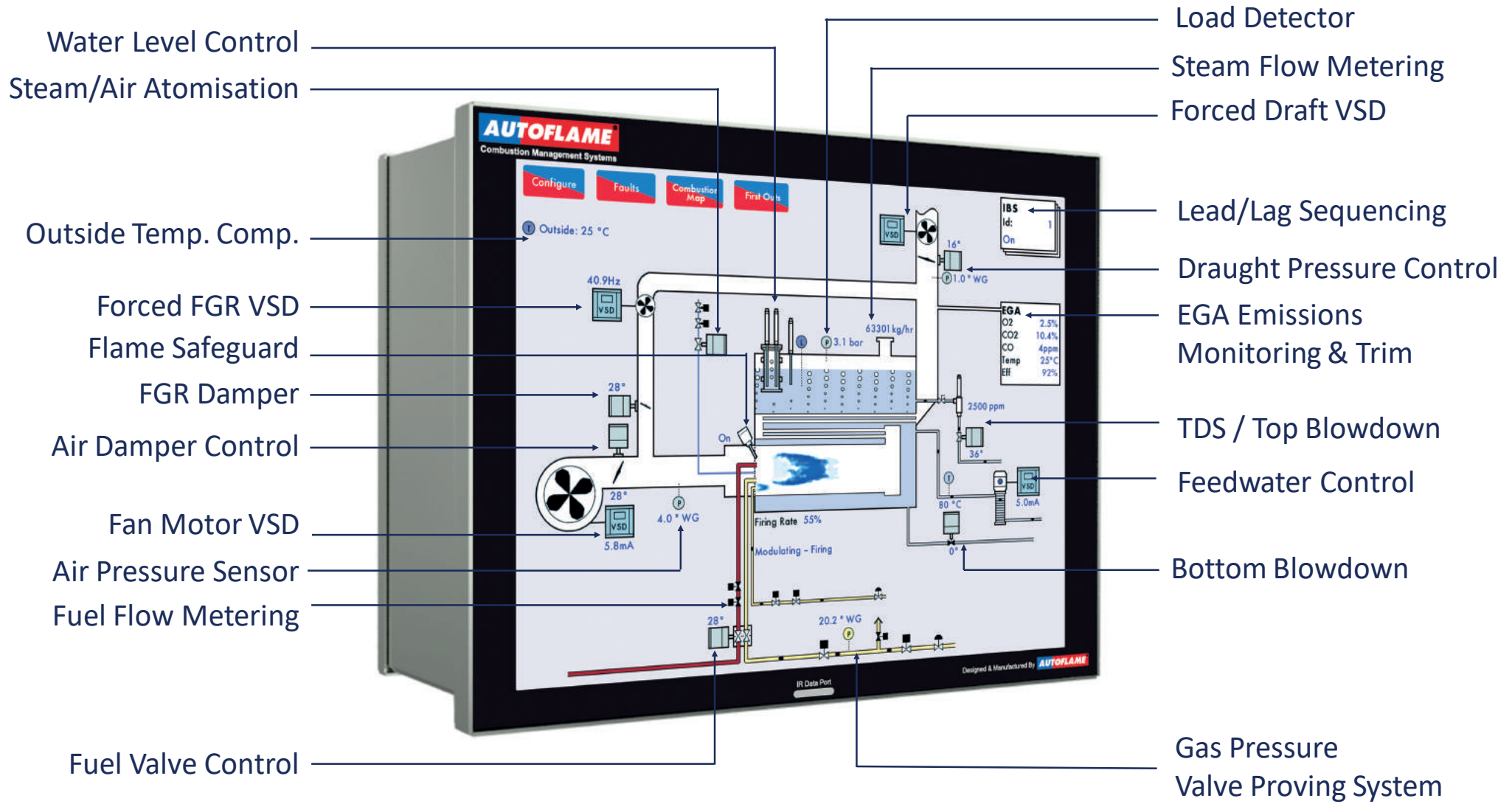
Brendan Kemp's professional life has been dedicated to the leading edge development of combustion control concepts.

*Autoflame holds 46 Patents which marks the development history of a system that started simply as an electronic modulation control which overcame the inaccuracy and repeatability problems inherent in existing electro-mechanical systems. The obsession with quality and engineering innovation drove the system through to its current state as the acknowledged world leader in managing the combustion process together with the boiler peripherals. Gas analysis and implementation of 3 parameter trim, utilising CO, CO<sub>2</sub>, O<sub>2</sub> and gas temperature completes this world leading control environment.*

### Autoflame Systems brings the following:

- AUTOFLAME** Totally Intuitive Commissioning and User Operation
- AUTOFLAME** Highest Possible Combustion Efficiency
- AUTOFLAME** Unsurpassed Accuracy & Repeatability
- AUTOFLAME** Data Acquisition, 6 Channel Flue Gas Analysis with 3 Parameter Trim Function
- AUTOFLAME** Totally Integrated Control of the Energy Process
- AUTOFLAME** All System Components Designed & Manufactured in House in the UK
- AUTOFLAME** Inter-Connectivity Proven & Guaranteed Between All Components
- AUTOFLAME** Touch Screen I/O
- AUTOFLAME** Multi-Language Screen Graphics
- AUTOFLAME** Worldwide Technical Support & Distribution
- AUTOFLAME** All Major International Approvals
- AUTOFLAME** 100+ Technology Centres Around the World

# COMPLETE CONTROL



Water Level Control  
Steam/Air Atomisation

Outside Temp. Comp.

Forced FGR VSD  
Flame Safeguard  
FGR Damper

Air Damper Control  
Fan Motor VSD

Air Pressure Sensor  
Fuel Flow Metering

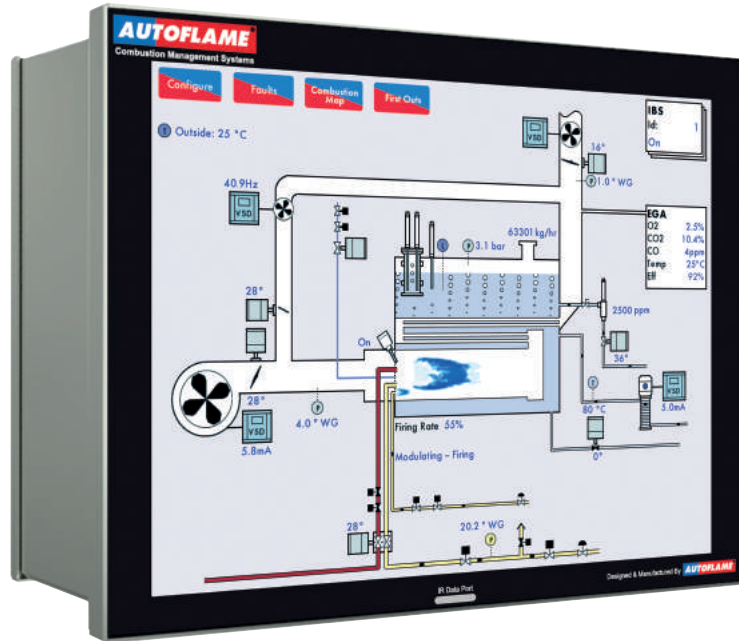
Fuel Valve Control

Load Detector  
Steam Flow Metering  
Forced Draft VSD

Lead/Lag Sequencing  
Draught Pressure Control  
EGA Emissions  
Monitoring & Trim

TDS / Top Blowdown  
Feedwater Control  
Bottom Blowdown

Gas Pressure  
Valve Proving System



|                              |                        |                                   |                   |
|------------------------------|------------------------|-----------------------------------|-------------------|
| Screen                       | 12.1"                  | Back up commissioning data via IR | ✓                 |
| Touch-Screen Type            | Capacitive Multi-Touch | Boiler log entries                | 1000              |
| Flame safeguard              | ✓                      | Dual fuel support                 | ✓                 |
| Air/fuel ratio control       | ✓                      | Air pressure monitoring & proving | ✓                 |
| IBS/lead-lag sequencing      | ✓                      | Oil pressure monitoring & proving | ✓                 |
| Scheduling                   | ✓                      | Fuel flow metering                | ✓                 |
| Commissioning                | ✓                      | Golden Start facility             | ✓                 |
| VSD management               | ✓                      | Commissioning points              | 20                |
| Reporting/graphing           | ✓                      | Customisable graphics             | ✓                 |
| FGR (Flue Gas Recirculation) | ✓                      | Flame rod/UV change over option   | Dual IR and/or UV |
| Channels                     | 5 servos/2 VSDs        | 10 language support               | ✓                 |
| Lockout/ Error logging       | 128                    | Metric & Imperial units           | ✓                 |
| Number of fuel curves        | 4                      | UL, CE, AGA approvals             | ✓                 |
| VPS (Gas Valve Proving)      | ✓                      | Single gas servo control          | ✓                 |
| Outside temperature          | ✓                      | On-board technical manual         | ✓                 |
| Login security               | ✓                      |                                   |                   |

## Mk8 MM Totally Integrated, Multi-Function Burner & Boiler Control System

The Mk8 MM Controller is a Micro-Modulating system that offers comprehensive control over industrial and commercial boiler/burners. It enables users to manage virtually all boiler processes from a single 12.1" multi-touch screen interface without any added modules. The Mk8 MM is ideal for steam and water boilers (watertube or firetube), kilns and steam generators. Designed for oil, natural gas or both fuels. The controller's linkageless servomotor system and automated flame safeguard create conditions for unmanned boilerhouse with remote monitoring and management with modbus connectivity.

The Mk8 Expansion Features Include:

- Autoflame water level management
- Analogue water level Control
- TDS/Top blowdown
- Bottom blowdown
- Draught control
- Direct Modbus connectivity
- First out annunciation
- Fully metered, cross-limited control
- Steam flow & water flow metering
- Fuel Changeover on the Fly (COF)

Equipment detailed below is specifically designed to integrate with the Mk8 MM



Positioning Servo Motors



Gas, Oil & FGR Valves



UV & IR Flame Scanners



Gas & Air Pressure Sensors



Load Sensors



Feedwater & Blowdown Control



Water Level Probes



TDS Top Blowdown

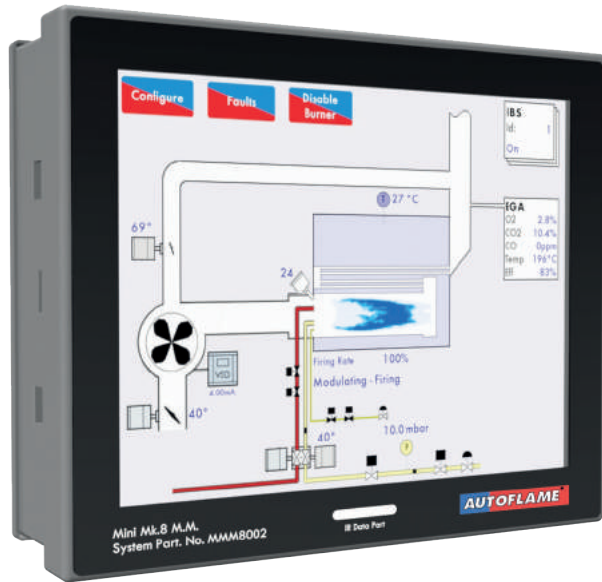


Outside Temp. Compensation



Draught Control

# THE MINI MK8 MM



|                              |                |                                   |          |
|------------------------------|----------------|-----------------------------------|----------|
| Screen                       | 7"             | Back up commissioning data via IR | ✓        |
| Touch-Screen Type            | Resistive      | Boiler log entries                | 1000     |
| Flame safeguard              | ✓              | Dual fuel support                 | ✓        |
| Air/fuel ratio control       | ✓              | Air pressure monitoring & proving | ✓        |
| IBS/lead-lag sequencing      | ✓              | Oil pressure monitoring & proving | ✓        |
| Scheduling                   | ✓              | Fuel flow metering                | ✓        |
| Commissioning                | ✓              | Golden Start facility             | ✓        |
| VSD management               | ✓              | Commissioning points              | 20       |
| Reporting/graphing           | ✓              | Customisable graphics             | ✓        |
| FGR (Flue Gas Recirculation) | ✓              | Flame rod/UV change over option   | IR or UV |
| Channels                     | 3 servos/1 VSD | 10 language support               | ✓        |
| Lockout/ Error logging       | 64             | Metric & Imperial units           | ✓        |
| Number of fuel curves        | 2              | UL, CE, AGA approvals             | ✓        |
| VPS (Gas Valve Proving)      | ✓              | Single gas servo control          | ✓        |
| Outside temperature          | ✓              | On-board technical manual         | ✓        |
| Login security               | ✓              |                                   |          |

## Fully Integrated Burner Management System for the smaller and potentially less complex applications

The Mini Mk8 is a cutting-edge Micro-Modulating system that provides an easily programmable and flexible means of optimising combustion throughout the load requirement range of the boiler/burner. This control module encompasses all the functions required for reliable burner management. Built into this system is a fully automated flame safeguard and valve proving system,

MODBUS connectivity, and a touchscreen interface. This system ensures the burner temperature is accurate to within 1° and pressure to within 1 PSI. The positioning accuracy of the direct drive motors controlling the air damper and fuel valve is 0.1 angular degrees throughout the load range. This accuracy ensures repeatable fuel-to-air ratio that leads to improved fuel economy and reduced carbon footprint.

Equipment detailed below is specifically designed to integrate with the Mini Mk8 MM



Positioning Servo Motors



Gas, Oil & FGR Valves



UV & IR Flame Scanners



Gas & Air Pressure Sensors



Load Sensors



Outside Temp. Compensation



## Mk8 EGA EVO

- AUTOFLAME** Online Multi-Channel Continuous Emissions Monitoring System (CEMS)
- AUTOFLAME** Measure and store emissions data for 3 years for up to 6 exhaust gases:
 

O<sub>2</sub>
CO<sub>2</sub>
CO
NO
NO<sub>2</sub>
SO<sub>2</sub>
- AUTOFLAME** 3 Parameter Trim (O<sub>2</sub>, CO<sub>2</sub> & CO), not just O<sub>2</sub> trim
- AUTOFLAME** Exhaust Gas Combustion Limits
- AUTOFLAME** Stand alone or MM Operation for Optimum Combustion

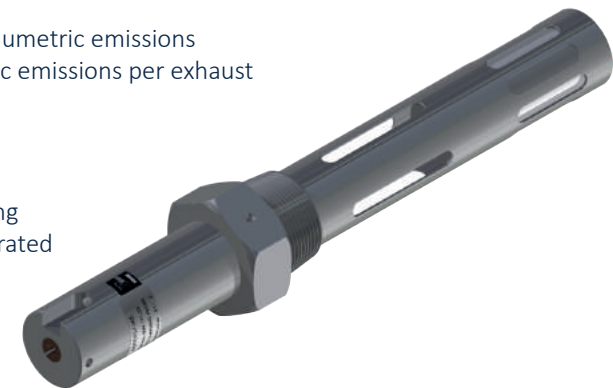
For decades, boilerhouses, manufacturing plants and other industrial environments have used Autoflame EGA's (Exhaust Gas Analyser) to monitor flue emissions to comply with environmental regulations & to reduce fuel usage & emissions. The EGA EVO can operate as a standalone independent continuous monitor, or it can feed back its readings to an Autoflame MM Boiler Controller, allowing the MM to trim the combustion air optimised the efficiency and system performance.

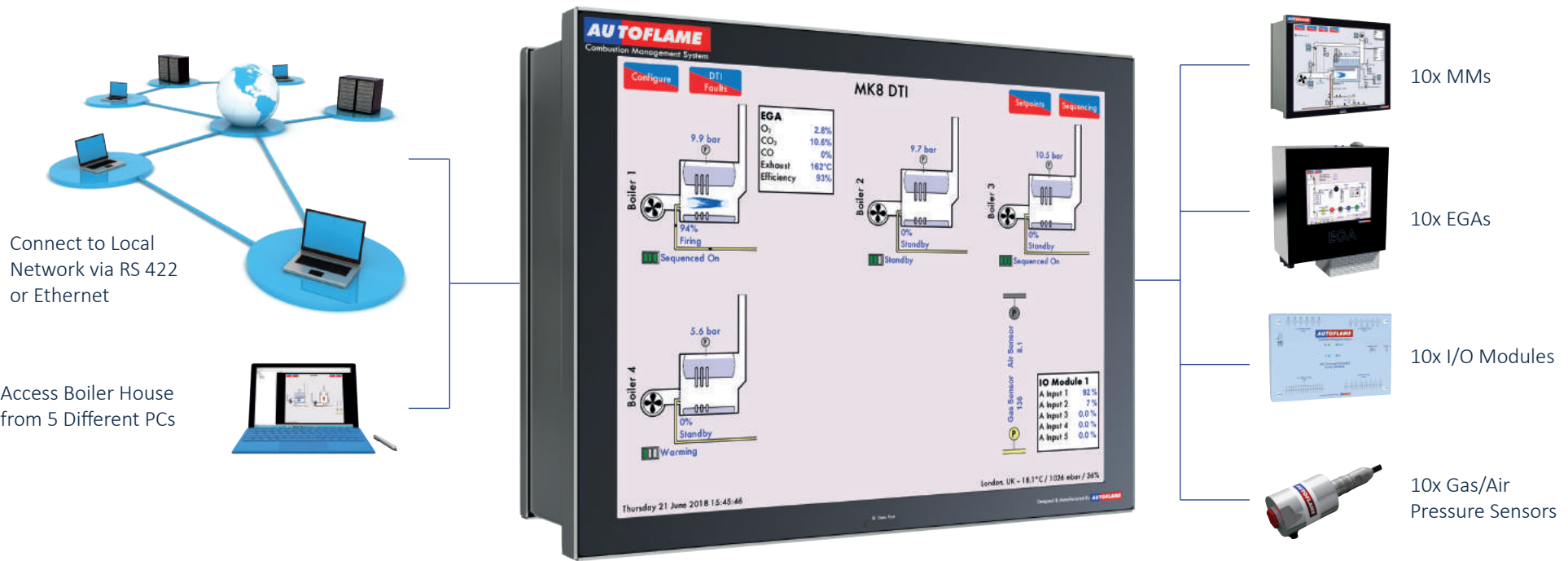
- Simultaneous & continuous sampling of up to 6 exhaust gases (O<sub>2</sub>, CO<sub>2</sub>, CO, NO, NO<sub>2</sub> & SO<sub>2</sub>) at a fraction of the price of alternative systems.
- Use with Autoflame MM Controller or Standalone Mode.
- Enables 3 parameter trim control in MM Controller for improved fuel efficiency and emission reduction.

With built-in CEMS Auditing software, view reports by user-definable time periods (24 hours, 2 weeks, 1 month, 3 years, etc.) based on:

- Total weight & volumetric emissions
- Weight/volumetric emissions per exhaust
- Total cost of fuel

EGA Exhaust Gas Sampling Probe with Filter & Integrated Thermocouple





## Mk8 Data Transfer Interface (DTI)

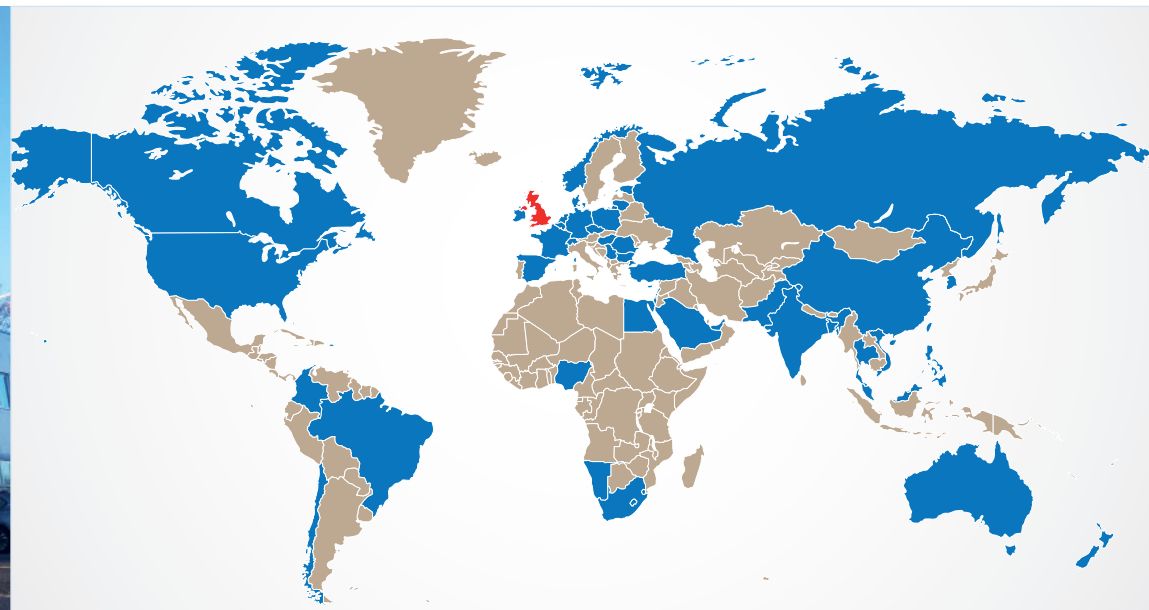
The Mk8 DTI lets users know in real time how the boilers are performing, either on-site through its built-in touch screen, via a local PC, or remotely via a BMS system. It stores MM and EGA system data for a rolling 3 year period.

The DTI is a gateway for communicating with the Autoflame MM Controller and/or EGA range of products. The DTI collects and stores information from a maximum of 10 Autoflame Systems in one location. The information gathered is instantly available for transmission to an external source such as a BMS via RS422 or Ethernet link. The Mk8 DTI also includes Autoflame DTI Manager software as standard, allowing data collection over a local network or over the internet. The Mk8 DTI also supports the Modbus protocol over Ethernet and RS422 as standard.

The DTI can collect information from up to 10 of each of the following Autoflame products:

- Mk8 MM Controller, Mini Mk8 MM Controller or any combination
- Autoflame Mk8 Exhaust Gas Anal Mk8 Data Transfer Interface (DTI) user (EGA) linked directly to the DTI
- Pressure sensor network – connect and monitor Autoflame Mk8 digital gas or air pressure sensors, with two years of data logs
- Input/Output modules with both analogue and digital connections
- Network Emails generated in the case of a fault or alarm

Trusted By



## UK BASED WITH OVER 100 TECHNOLOGY CENTRES WORLDWIDE

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enquiries@autoflame.com

